

Requester's Full Name: CARRILLOArt Unit: 1746Phone Number 308-1876Mail Box and Bldg/Room Location: CP3-7812Examiner #: 72492Date: 5/1/0Serial Number: 09/734186Results Format Preferred (circle):  PAPER  DISK

If more than one search is submitted, please prioritize the searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the conceivable utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Method for removing oxide & coatings from a substrate

Inventors (please provide full names): Lawrence Kool, James Roud

Earliest Priority Filing Date: 1/29/01

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

(remove  
 dissolve  
 clean?  
 etch?  
 strip  
 eliminate)

(oxide  
 or  
 metal oxide  
 or  
 coating or film or  
 layer)

(substrate or  
 metal or  
 gas turbine  
 or turbine  
 or airfoil or  
 turbine airfoil)

using the claimed composition

Results needed by Monday 5/5/03.

Please enclose attached page of specification

which defines precursors of the claim.

Independent claims 1, 23, 24, 27

Kathleen,

I left a phone

in 2209

Call me

\*\*\*\*\*  
STAFF USE ONLY

Searcher:

K. Fuller

Searcher Phone #:

Searcher Location:

Date Searcher Picked Up:

Date Completed: 5/2/03

Searcher Prep & Review Time: 40

Clerical time:

Type of Search

NA Sequence (#)

STN

Vendors and cost where applicable

AA Sequence (#)

Dialog

Structure (#)

Questel/Orbit

Bibliographic

Dr. Link

Litigation

Lexis/Nexis

Fulltext

=> FILE HCAPLUS

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FILE COVERS 1907 - 2 May 2003 VOL 138 ISS 19  
FILE LAST UPDATED: 1 May 2003 (20030501/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE

L3 14 SEA FILE=REGISTRY ABB=ON (10034-85-2/BI OR 10035-10-6/BI OR 12021-95-3/BI OR 13598-36-2/BI OR 16950-43-9/BI OR 16961-83-4/B I OR 17439-11-1/BI OR 6303-21-5/BI OR 64-19-7/BI OR 7601-90-3/B I OR 7647-01-0/BI OR 7664-38-2/BI OR 7664-93-9/BI OR 7697-37-2/BI)  
L4 3 SEA FILE=REGISTRY ABB=ON L3 AND (1/TI OR 1/SI OR 1/GE)  
L6 197 SEA FILE=REGISTRY ABB=ON (H(L)(SI OR GE OR TI OR GA)(L)F)/ELS( L)3/ELC.SUB  
L8 1 SEA FILE=REGISTRY ABB=ON "HYDROGEN FLUORIDE"/CN  
L9 1 SEA FILE=REGISTRY ABB=ON "SILICON DIOXIDE"/CN  
L10 2 SEA FILE=REGISTRY ABB=ON "GERMANIUM OXIDE"/CN  
L11 2 SEA FILE=REGISTRY ABB=ON "TITANIUM OXIDE"/CN  
L12 2 SEA FILE=REGISTRY ABB=ON "GALLIUM OXIDE"/CN  
L14 197 SEA FILE=REGISTRY ABB=ON L6 OR L4  
L15 3095 SEA FILE=HCAPLUS ABB=ON L14  
L17 254 SEA FILE=HCAPLUS ABB=ON L15 AND ?OXIDE? AND (REMOV? OR DISSOL? OR CLEAN? OR ETHCH? OR STRIP? OR ELIMIN? OR PICKL?)  
L18 138366 SEA FILE=HCAPLUS ABB=ON OXIDES/IT  
L19 3150 SEA FILE=HCAPLUS ABB=ON L18(L)REM/RL  
L20 2 SEA FILE=HCAPLUS ABB=ON L17 AND L19  
L22 76 SEA FILE=HCAPLUS ABB=ON L15 AND ?OXIDE?(5A) (REMOV? OR DISSOL? OR CLEAN? OR ETHCH? OR STRIP? OR ELIMIN? OR PICKL?)  
L23 31 SEA FILE=HCAPLUS ABB=ON L22 AND (SUBSTRATE? OR METAL? OR TURBINE? OR AIRFOIL?)  
L24 2 SEA FILE=HCAPLUS ABB=ON L15 AND L19  
L25 4829 SEA FILE=HCAPLUS ABB=ON L15 OR H2SIF6 OR H2GEF6 OR H2TIF6 OR H2GAF6 OR FLUORO?(2A)ACID#(2A)(SILICON OR TITANIUM OR GERMANIUM OR GALLIUM OR TI OR SI OR GE OR GA)  
L26 117 SEA FILE=HCAPLUS ABB=ON L25 AND (OXIDE? OR COATING# OR FILM# OR LAYER#)(3A) (REMOV? OR DISSOL? OR CLEAN? OR ETHCH? OR STRIP? OR PICKL?)  
L27 3 SEA FILE=HCAPLUS ABB=ON L19 AND L26  
L28 26 SEA FILE=HCAPLUS ABB=ON L26 AND NONFERROUS METALS/SC, SX

Acids  
precursors

L29	13 SEA FILE=HCAPLUS ABB=ON	L26 AND REM/RL
L30	2 SEA FILE=HCAPLUS ABB=ON	L23 AND REM/RL
L31	62 SEA FILE=HCAPLUS ABB=ON	L20 OR L23 OR L24 OR (L27 OR L28 OR L29 OR L30)
L32	13 SEA FILE=HCAPLUS ABB=ON	L31 AND REM/RL
L34	33 SEA FILE=HCAPLUS ABB=ON	L31 AND METAL?/SC, SX
L36	25 SEA FILE=HCAPLUS ABB=ON	L31 AND REMOV?/IT
L37	48 SEA FILE=HCAPLUS ABB=ON	L32 OR L34 OR L36
L39	33025 SEA FILE=HCAPLUS ABB=ON	L8
L40	360136 SEA FILE=HCAPLUS ABB=ON	(L9 OR L10 OR L11 OR L12)
L42	6533 SEA FILE=HCAPLUS ABB=ON	L39(L)RCT/RL
L43	14472 SEA FILE=HCAPLUS ABB=ON	L40(L)RCT/RL
L44	309 SEA FILE=HCAPLUS ABB=ON	L42 AND L43
L45	122 SEA FILE=HCAPLUS ABB=ON	L44 AND (?OXIDE? OR COATING# OR FILM# OR LAYER#) (3A) (REMOV? OR DISSOL? OR CLEAN? OR ETCH? OR STRIP? OR ELIMIN? OR PICKL?)
L46	41 SEA FILE=HCAPLUS ABB=ON	L45 AND (SUBSTRATE? OR METAL? OR TURBINE# OR AIRFOIL?)
L47	0 SEA FILE=HCAPLUS ABB=ON	L46 AND PRECURSOR?
L48	0 SEA FILE=HCAPLUS ABB=ON	L45 AND PRECURSOR?
L49	1 SEA FILE=HCAPLUS ABB=ON	L26 AND PRECURSOR?
L51	5 SEA FILE=HCAPLUS ABB=ON	L46 AND (REM/RL OR REMOV?/IT)
L52	3 SEA FILE=HCAPLUS ABB=ON	L45 AND METAL?/SC, SX
L53	3725 SEA FILE=HCAPLUS ABB=ON	L39 AND L40
L54	122 SEA FILE=HCAPLUS ABB=ON	L53 AND PRECURSOR?
L55	49 SEA FILE=HCAPLUS ABB=ON	L54 AND (?OXIDE? OR COATING# OR FILM# OR LAYER#) (3A) (REMOV? OR DISSOL? OR CLEAN? OR ETCH? OR STRIP? OR ELIMIN? OR PICKL?)
L56	1 SEA FILE=HCAPLUS ABB=ON	L19 AND L55
L58	352 SEA FILE=HCAPLUS ABB=ON	L19(L)INORGANIC
L59	10 SEA FILE=HCAPLUS ABB=ON	L53 AND L58
L60	65 SEA FILE=HCAPLUS ABB=ON	L37 OR (L47 OR L48 OR L49) OR L51 OR L52 OR L56 OR L59

=> D ALL 1-65 HITSTR

L60 ANSWER 1 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2003:260764 HCAPLUS  
 DN 138:277746  
 TI Method and apparatus for selectively removing coatings from substrates *applicants*  
 IN Kool, Lawrence Bernard; Carl, Ralph James; Wei, Bin; Ruud, James Anthony;  
     Rosenzweig, Mark Alan; Ferrigno, Stephen Joseph  
 PA USA  
 SO U.S. Pat. Appl. Publ., 21 pp.  
     CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C25F005-00  
     ICS C25F007-00  
 NCL 205717000; 205722000; 205723000; 204224000R; 204267000; 204272000;  
     204273000  
 CC 72-7 (Electrochemistry)  
     Section cross-reference(s): 56  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 2003062271 A1 20030403 US 2001-682620 20010928  
 PRAI US 2001-682620 20010928

AB An electrochem. stripping method for selectively removing at least one **coating** from the surface of a substrate is described. The substrate is immersed in an aq. compn. through which elec. current flows. The compn. includes an acid having the formula H<sub>x</sub>AF<sub>6</sub>, in which "A" is Si, Ge, Ti, Zr, Al, or Ga; and x is 1-6. Various **coatings** can be removed, such as diffusion or overlay coatings. The method can be used to fully-strip a **coating** (e.g., from a turbine component), or to partially strip one sublayer of the coating. Related processes and an app. are also described.

ST electrolyzer selective **removing coating** superalloy  
 turbine blade

IT Coating materials  
 (app. for selectively **removing coatings** from substrates)

IT Turbines  
 (blades; electrolytic cell for selectively **removing coatings** from)

IT Dissolution  
 (electrochem.; app. for selectively **removing coatings** from substrates) ✓

IT Superalloys  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (electrolytic cell for selectively **removing coatings** from)

IT Apparatus  
 Electrolytic cells  
 (for selectively **removing coatings** from substrates)

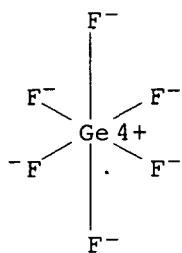
IT cobalt superalloy  
 nickel superalloy  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (electrolytic cell for selectively **removing coatings** from)

IT 12021-95-3, Zirconate(2-) hexafluoro, dihydrogen 16950-43-9  
**16961-83-4**, Silicate(2-) hexafluoro, dihydrogen 17439-11-1  
 , Titanate(2-) hexafluoro, dihydrogen 44438-56-4 51350-73-3,  
 Trihydrogen hexafluoroaluminate(3-)  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (electrolytic cell for selectively **removing coatings** from substrates in soln. contg.)

IT 16950-43-9 16961-83-4, Silicate(2-) hexafluoro,  
 dihydrogen 17439-11-1, Titanate(2-) hexafluoro, dihydrogen  
**44438-56-4**  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (electrolytic cell for selectively **removing coatings** from substrates in soln. contg.)

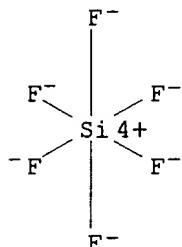
RN 16950-43-9 HCPLUS

CN Germanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



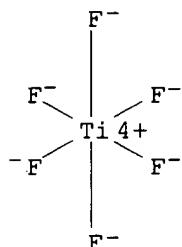
2 H<sup>+</sup>

RN 16961-83-4 HCPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



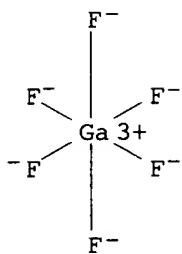
2 H<sup>+</sup>

RN 17439-11-1 HCPLUS  
CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2 H<sup>+</sup>

RN 44438-56-4 HCPLUS  
CN Gallate(3-), hexafluoro-, trihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

③ H<sup>+</sup>

L60 ANSWER 2 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 2003:172200 HCPLUS  
 DN 138:230138  
 TI Etching residue deposition removal solutions in manufacture of semiconductor devices  
 IN Shimizu, Koji; Sugiyama, Tsutomu; Miyahara, Kuniaki  
 PA Showa Denko K. K., Japan  
 SO Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM H01L021-306  
 ICS C09D009-00; H01L021-3065; H01L021-3213; H01L021-768  
 CC 76-3 (Electric Phenomena)  
 FAN.CNT 1

Date 10/05

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003068699	A2	20030307	JP 2001-252481	20010823
PRAI JP 2001-252481		20010823		

AB The title etching residue removal solns. is an aq. soln. (pH 9-11) contg. (1) a fluoride, (2) an aminoalc. NR1R2R3 (R1 = -CH<sub>2</sub>CH<sub>2</sub>OH, -CH<sub>2</sub>CHMeOH; R2 = H C1-4 alkyl, -CH<sub>2</sub>HC<sub>2</sub>OH, -CH<sub>2</sub>CHMeOH; R3 = H C1-4 alkyl), and (3) an org. solvent. The solns. quickly removes etching residue sidewall deposition without corrosion of metal circuits or interlayer materials.

ST fluoride aminoalc org aq soln etching residue removal semiconductor

IT Alcohols, properties  
 RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (amino, etching residue removal solvent; etching residue deposition removal solns. in manuf. of semiconductor devices)

IT Semiconductor device fabrication  
 (etching residue removal in; etching residue deposition removal solns. in manuf. of semiconductor devices)

IT Fluorides, properties  
 RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (etching residue removal solvent; etching residue deposition removal solns. in manuf. of semiconductor devices)

IT Solid wastes  
 (etching residues, removal of; etching residue deposition removal solns. in manuf. of semiconductor devices)

IT Etching

(residues from, removal of; etching residue deposition  
removal solns. in manuf. of semiconductor devices)

IT Corrosion prevention

(solns.; etching residue deposition removal solns. in manuf.  
of semiconductor devices)

IT 57-55-6, Propylene glycol, properties 67-63-0, Isopropyl alcohol,  
properties 67-68-5, Dimethylsulfoxide, properties 68-12-2,  
Dimethylformamide, properties 80-73-9, 1,3-Dimethyl-2-imidazolidinone  
96-48-0, .gamma.-Butyrolactone 100-37-8, N,N-Diethylmonoethanolamine  
105-59-9, N-Methyldiethanolamine 108-01-0, N,N-Dimethylethanolamine  
109-83-1, N-Methylmonoethanolamine 111-42-2, Diethanolamine, properties  
127-19-5, Dimethylacetamide 141-43-5, Monoethanolamine, properties  
288-88-0, 1H-1,2,4-Triazole 872-50-4, N-Methyl-2-pyrrolidone, properties  
4402-32-8, N,N-Diethylisopropanolamine 7664-39-3, Hydrogen fluoride,  
properties 12125-01-8, Ammonium fluoride (NH<sub>4</sub>F) 16919-19-0, Ammonium  
hexafluorosilicate ((NH<sub>4</sub>)<sub>2</sub>SiF<sub>6</sub>) **16961-83-4** 34590-94-8,  
Dipropylene glycol monomethyl ether 56539-66-3

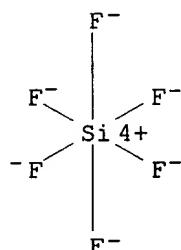
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(etching residue removal solvent; etching residue deposition  
removal solns. in manuf. of semiconductor devices)

IT **16961-83-4**

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(etching residue removal solvent; etching residue deposition  
removal solns. in manuf. of semiconductor devices)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



●2 H<sup>+</sup>

L60 ANSWER 3 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 2002:752691 HCPLUS

DN 137:287357

TI Plasma surface treatment of semiconductor substrates

IN Kim, Jeong-Ho; Lee, Gil-Gwang

PA APL Co., Ltd., S. Korea

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L021-3065

ICS H01L021-304; H05H001-46

CC 76-3 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002289596	A2	20021004	JP 2002-292	20020107
PRAI	KR 2001-1018	A	20010108		
	KR 2001-79425	A	20011214		
AB	The process includes: (a) forming polymer films on the natural oxide films on Si substrates covered with insulator layers, (b). removal of both the polymer and the oxide films by annealing, and (c) removal of the damaged parts of the substrate surface. The process is employed for etching to form contact holes in the insulator layers, where the unwanted oxide films are formed.				
ST	plasma surface treatment semiconductor substrate; natural oxide polymer film removal annealing				
IT	Plasma Surface treatment (plasma surface treatment of semiconductor substrates)				
IT	Annealing Dielectric films (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
IT	Oxides (inorganic), processes RL: REM (Removal or disposal); PROC (Process) (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
IT	7440-21-3, Silicon, processes RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses) (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
IT	75-46-7, Trifluoromethane 1333-74-0, Hydrogen, reactions 7647-01-0, Hydrochloric acid, reactions 7664-39-3, Hydrofluoric acid, reactions 7727-37-9, Nitrogen, reactions 10035-10-6, Hydrogen bromide, reactions 10294-34-5, Boron chloride (BCl <sub>3</sub> ) RL: RCT (Reactant); RACT (Reactant or reagent) (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
IT	7631-86-9, Silica, processes RL: REM (Removal or disposal); PROC (Process) (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
IT	7664-39-3, Hydrofluoric acid, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
RN	7664-39-3 HCPLUS				
CN	Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)				

*Date NC*

HF

IT	7631-86-9, Silica, processes RL: REM (Removal or disposal); PROC (Process) (removal of polymer and oxide films in plasma surface treatment of semiconductor substrates)				
RN	7631-86-9 HCPLUS				
CN	Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)				

O==Si==O

L60 ANSWER 4 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 2002:736821 HCPLUS  
 DN 137:256401  
 TI Method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using the same  
 IN Park, Hee-sook  
 PA Samsung Electronics Co., Ltd., S. Korea  
 SO U.S. Pat. Appl. Publ., 22 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM H01L021-8242  
 ICS H01L021-44; H01L021-4763  
 NCL 438241000  
 CC 76-3 (Electric Phenomena)  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002137276	A1	20020926	US 2002-103942	20020322
PRAI KR 2001-15248	A	20010323		

AB A method for forming a contact of a semiconductor device, esp. a memory device, is disclosed in which the contact elec. properties are not degraded by thermal processes during contact fabrication. A 1st interlevel dielec. (ILD) layer is formed on a conductive region, e.g., an active region. The 1st ILD layer is etched to form a 1st contact hole therein to expose the conductive region. The 1st contact hole is filled with a porous layer having a high etch selectivity with respect to the 1st ILD layer to form a porous plug therein. Next, a 2nd ILD layer is formed overlying the porous plug. The 2nd ILD layer is etched to form a 2nd contact hole therein to expose the porous plug. The porous plug in the 1st contact hole is removed. The 1st and 2nd contact holes are filled with a conductive material to form a contact plug. During this contact formation process, the active region or the conductive region of the semiconductor substrate can be protected with the porous plug. Thus, the elec. characteristics degrdn. caused by dopant diffusion resulting from a thermal process during contact formation can be avoided.

ST porous plug barrier contact hole semiconductor memory device fabrication  
 IT Vapor deposition process  
     (chem., porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)  
 IT Porous materials  
     (films; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)  
 IT Contact holes  
     Electric contacts  
     Porous materials  
     Semiconductor devices  
     Semiconductor memory devices  
     Transistors  
         (method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT Aerogels  
Diffusion barrier  
Heat treatment  
Polishing  
Xerogels  
(porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT Oxides (inorganic), processes  
RL: NUU (Other use, unclassified); REM (Removal or disposal);  
PROC (Process); USES (Uses)  
(porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT Glass, processes  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT Films  
(porous; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT Etching  
(removing porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT Glass, processes  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(spin on, porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT 75-76-3, Tetramethylsilane 353-66-2, Dimethyldifluoro silane 420-56-4, Trimethylfluorosilane 1333-74-0, Hydrogen, processes 7782-44-7, Oxygen, processes 7783-61-1, Tetrafluorosilane  
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(CVD precursor for oxide porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT 7664-39-3, Hydrogen fluoride, processes  
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(etchant for porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT 7631-86-9P, Silica, processes 39345-87-4DP, Silicon carbide oxide, hydrogenated 39345-87-4P, Silicon carbide oxide 116305-88-5P, Silicon fluoride oxide  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

IT 7664-39-3, Hydrogen fluoride, processes

RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (etchant for porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

RN 7664-39-3 HCPLUS  
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9P, Silica, processes  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (porous plug; method for forming contact having low resistivity using porous plug and method for forming semiconductor devices using same)

RN 7631-86-9 HCPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

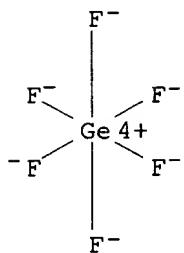
L60 ANSWER 5 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 2002:575443 HCPLUS  
 DN 137:128349  
 TI Acidic etching for removal of oxide films and coatings from a metal substrate  
 IN Kool, Lawrence Bernard; Ruud, James Anthony  
 PA General Electric Company, USA  
 SO U.S. Pat. Appl. Publ., 11 pp.  
 CODEN: USXXCO

DT Patent  
 LA English  
 IC ICM C23G001-02  
 NCL 134003000  
 CC 56-6 (Nonferrous Metals and Alloys)  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002100493	A1	20020801	US 2001-771186	20010129
PRAI US 2001-771186		20010129		
AB Etching or pickling with aq. fluoro acid soln. is applied for selective removal of oxide films or coating from the surface of metal, alloy, or polymer substrate. The aq. bath contains the fluoro acids of Si, Ge, Ti, Zr, Al, or Ga, esp. H <sub>2</sub> SiF <sub>6</sub> or H <sub>2</sub> ZrF <sub>6</sub> . The acidic bath optionally includes an addnl. acid selected from H <sub>3</sub> PO <sub>4</sub> , HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl, or HF. The process is suitable for removal of worn or damaged protective oxide coating on superalloy substrate, esp. for repair coating on gas-turbine parts.				
ST fluoro acid etching oxide film removal substrate; acidic bath pickling oxide				

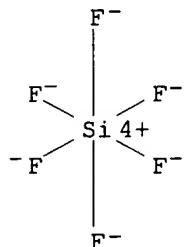
*applicant*

IT      **coating removal superalloy**  
IT      Etching  
          (acidic; acidic etching bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      **Pickling**  
          (acidic; acidic **pickling** bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      **Oxides** (inorganic), processes  
RL: REM (Removal or disposal); PROC (Process)  
      (films, removal of; acidic **pickling** bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      Cast alloys  
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process)  
      (nickel alloys, **oxide removal** on; acidic **pickling** bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      **Turbines**  
          (parts, **oxide removal** on; acidic **pickling** bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      64-19-7, Acetic acid, uses 6303-21-5, Phosphinic acid 7601-90-3,  
Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2,  
Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 10034-85-2, Hydroiodic acid 10035-10-6, Hydrobromic acid, uses 13598-36-2, Phosphorous acid, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
      (etching bath contg.; acidic etching bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      12021-95-3 **16950-43-9 16961-83-4**, Hexafluorosilicic acid 17439-11-1, Fluorotitanic acid  
RL: TEM (Technical or engineered material use); USES (Uses)  
      (etching bath contg.; acidic etching bath for **removal of oxide films** and coatings from **metal substrates**)  
IT      **16950-43-9 16961-83-4**, Hexafluorosilicic acid 17439-11-1, Fluorotitanic acid  
RL: TEM (Technical or engineered material use); USES (Uses)  
      (etching bath contg.; acidic etching bath for **removal of oxide films** and coatings from **metal substrates**)  
RN      16950-43-9 HCAPLUS  
CN      Germanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



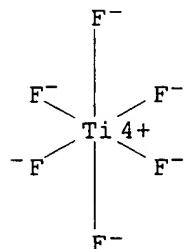
2 H<sup>+</sup>

RN 16961-83-4 HCPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



2 H<sup>+</sup>

RN 17439-11-1 HCPLUS  
CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2 H<sup>+</sup>

L60 ANSWER 6 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 2002:391342 HCPLUS  
DN 136:389424

TI Two-bath conversion coating on metal or alloy surface for increased paint adhesion  
 IN Sebrall, Lars; Wettere, Sean M.; Walte, Manfred  
 PA Chemetall G.m.b.H., Germany  
 SO Eur. Pat. Appl., 17 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM B05D007-14  
 CC 56-6 (**Nonferrous Metals and Alloys**)  
 Section cross-reference(s): 42

*Date NG*

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1206977	A2	20020522	EP 2001-123885	20011005
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 6488990	B1	20021203	US 2000-684271	20001006
PRAI	US 2000-684271	A	20001006		

AB The surface of Al, Cu, Fe, Mg, Zn, or their alloys is coated at 10-100.degree. by 2-stage conversion with: (a) pickling-type bath contg. Zr, Hf, Ti, Si, and/or B ions with a fluoride; and (b) conversion bath contg. org. groups with optional acids or salts, to form self-assembling mols. (esp. with monolayer coverage). The conversion coating is a suitable primer for painting, adhesive application, rubber deposit, and/or sealing, and can be applied on small parts, strip, wire, or beverage cans. The pickling-type soln. typically contains Zr or Ti at 0.0001-0.1% with 0.001-0.2% fluoride. The conversion bath is prep'd. with pH of 1-10, and optionally includes org. solvent. The primer coating is optionally applied in multilayer form by repeating the 2-stage conversion. The typical baths suitable for conversion coating of AA 6061 Al-alloy sheets contain: (a) deionized water with hexafluorozirconic acid for 0.016% Zr, hexafluorotitanic acid for Ti 0.043, and complexed hexafluoride at 0.12% with pH adjusted to 3; and (b) deionized water with dodecanediphosphonic acid at 0.33 g/L. The primer-coated Al-alloy sheets were suitable for painting with com. clear polyester.

ST conversion bath metal coating paint adhesion; aluminum alloy coating conversion bath paint adhesion; **pickling** stage conversion coating metal surface

IT **Pickling**

(coating with; two-bath coating on metal surface with pickling and conversion for paint adhesion)

## IT Coating process

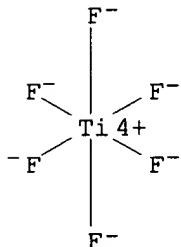
(conversion, primer; two-bath conversion coating on metal or alloy surface for increased paint adhesion)

## IT Coating process

(painting, primer for; two-bath coating on metal surface with pickling and conversion for paint adhesion)

IT 674-70-4 674-71-5 763-26-8 1429-50-1, Ethylenediaminetetramethylene phosphonic acid 4546-06-9 4671-77-6, 1,4-Butanediphosphonic acid 4721-22-6 5943-21-5, 1,10-Decane diphosphonic acid 5943-66-8, 1,8-Octanediphosphonic acid 7440-21-3D, Silicon, compds. 7440-32-6D, Titanium, compds. 7440-42-8D, Boron, compds. 7440-58-6D, Hafnium, compds. 7440-67-7D, Zirconium, compds. 7450-59-1, 1,12-Dodecanediphosphonic acid 12021-95-3 13138-33-5 13817-79-3 15827-60-8, Diethylene triaminepentamethylene phosphonic acid 16984-48-8, Fluoride, uses 17439-11-1, Hexafluorotitanic acid 23605-74-5 37971-36-1, 2-Phosphonobutane-1,2,4-tricarboxylic acid

50421-68-6 74748-16-6 85590-01-8 159239-33-5 198065-35-9  
 210237-15-3 216106-45-5 378232-64-5 412916-50-8 412916-52-0  
 412916-54-2  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (coating bath contg.; two-bath coating on metal surface with pickling  
 and conversion for paint adhesion)  
 IT 7429-90-5, Aluminum, processes 7439-89-6, Iron, processes 7439-95-4,  
 Magnesium, processes 7440-50-8, Copper, processes 7440-66-6, Zinc,  
 processes 12616-75-0, AA 6061  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical  
 process); PROC (Process)  
 (coating of; two-bath coating on metal surface with pickling and  
 conversion for paint adhesion)  
 IT 17439-11-1, Hexafluorotitanic acid  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (coating bath contg.; two-bath coating on metal surface with pickling  
 and conversion for paint adhesion)  
 RN 17439-11-1 HCPLUS  
 CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 7 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 2002:293775 HCPLUS  
 DN 136:326996  
 TI Method for pretreating and subsequently coating metallic surfaces with a  
 paint-type coating prior to forming and use of substrates coated in this  
 way  
 IN Shimakura, Toshiaki; Bittner, Klaus; Domes, Heribert; Wietzoreck, Hardy;  
 Jung, Christian  
 PA Chemteall GmbH, Germany  
 SO PCT Int. Appl., 115 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 IC ICM C09D005-00  
 CC 42-2 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 55, 56  
 FAN.CNT 6  

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002031065	A2	20020418	WO 2001-EP11738	20011010
	WO 2002031065	A3	20020627		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,  
 PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,  
 US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2002015940 A5 20020422 AU 2002-15940 20011010

PRAI DE 2000-10050532 A 20001011  
 DE 2001-10110830 A 20010306  
 DE 2001-10119606 A 20010421  
 WO 2001-EP11738 W 20011010

*coating*

AB The invention relates to a method for **coating** a metallic **strip**. The strip or optionally, the strip sections produced from said strip in the subsequent process, is/are coated first with at least one anticorrosion layer and then with at least one layer of a paint-like coating contg. polymers and/or with at least one paint coating. After being coated with at least one anticorrosion layer or after being coated with at least one layer of a paint-like coating and/or with at least one paint coating, the **strip** is divided into strip sections. The coated strip sections are then formed, joined and/or coated with at least one (other) paint-like coating and/or paint coating. At least one of the anticorrosion layers is formed by **coating** the surface with an aq. dispersion contg. the following in addn. to water: (a) at least one org. film former contg. at least one water-sol. or water-dispersed polymer; (b) a quantity of cations and/or hexa- or tetrafluoro complexes of cations chosen from a group consisting of titanium, zirconium, hafnium, silicon, aluminum and boron; and (c) at least one inorg. compd. in particle form with an av. particle diam. measured on a scanning electron microscope of 0.005 to 0.2 .mu.m. The clean metallic surface is brought into contact with the aq. compn. and a film contg. particles is formed on the metallic surface, this film then being dried and optionally also hardened, the dried and optionally, also hardened film having a layer thickness of 0.01 to 10 .mu.m. The speed of coating metal objects with complex profiles is high using this process and need of Cr<sub>6+</sub> compds. and acids is reduced. The coated products are useful in manuf. of automobile bodies, aircraft, and spacecraft.

ST titanium fluoride water thinned anticorrosive primer metal strip; spacecraft metal substrate water thinned anticorrosive primer; aircraft metal substrate water thinned anticorrosive primer; automobile body metal substrate water thinned anticorrosive primer; chromium free inorg compd water thinned anticorrosive primer metal; boron fluoride water thinned anticorrosive primer metal strip; aluminum fluoride water thinned anticorrosive primer metal strip; silicon fluoride water thinned anticorrosive primer metal strip; hafnium fluoride water thinned anticorrosive primer metal strip; zirconium fluoride water thinned anticorrosive primer metal strip

IT Layered double hydroxides  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (aluminum-contg., anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Silanes  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(amino, anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Alcohols, uses  
Amines, uses  
Carbonates, uses  
Fluorides, uses  
Oxides (inorganic), uses  
Paraffin waxes, uses  
Phosphates, uses  
Rare earth oxides  
Silicates, uses  
Sulfates, uses  
Transition metal compounds  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Aminoplasts  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Polyamines  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Polyesters, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Polysiloxanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Primers (paints)  
(anticorrosive; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Automobiles  
(bodies; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Coating process  
(coil; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Polysiloxanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polyester-, anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Polyesters, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polysiloxane-, anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Conducting polymers  
(powder, anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Aircraft  
Space vehicles  
(pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Amines, uses  
Epoxides  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(silyl, anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Galvanized steel  
RL: MSC (Miscellaneous)  
(substrate; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Adhesives  
Inks  
(top layers; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Primers (paints)  
(water-thinned; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT Aluminum alloy, base  
Copper alloy, base  
Iron alloy, base  
Magnesium alloy, base  
Nickel alloy, base  
Tin alloy, base  
Titanium alloy, base  
Zinc alloy, base  
RL: MSC (Miscellaneous)  
(substrate; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 674-70-4 674-71-5 763-26-8 1429-50-1, Ethylenediaminetetramethylenephosphonic acid 3071-50-9 4546-06-9, p-Xylylenediphosphonic acid 4671-77-6, 1,4-Butanediphosphonic acid 4721-22-6, 1,6-Hexanediphosphonic acid 5943-21-5, 1,10-Decanediphosphonic acid 5943-66-8, 1,8-Octanediphosphonic acid 6419-19-8, Aminotrimethylenephosphonic acid 7450-59-1, 1,12-Dodecanediphosphonic acid 15827-60-8, Diethylenetriaminepentamethylenephosphonic acid 23605-74-5 26914-14-7, Diethylthiourea 37971-36-1 50421-68-6 74748-16-6 85590-01-8 151861-26-6, 1,14-Tetradecanediphosphonic acid 159239-33-5,

12-Mercaptododecylphosphonic acid 198065-35-9, 12-(Ethylamino)dodecanephosphonic acid 210237-15-3 216106-45-5  
378232-64-5 412916-50-8 412916-52-0 412916-54-2  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(addnl. corrosion inhibitor; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 50-21-5D, Lactic acid, titanium complexes 77-92-9, Citric acid, uses 598-62-9, Manganese carbonate 1306-38-3, Cerium dioxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconia, uses 1314-36-9, Yttrium oxide, uses 1343-98-2, Silicic acid 1344-28-1, Aluminum oxide, uses 2530-83-8, 3-Glycidyloxypropyltrimethoxysilane 4619-20-9D, zirconium complexes 7429-90-5D, Aluminum, fluoro complexes 7439-89-6D, Iron, compds. 7439-91-0D, Lanthanum, salts 7439-96-5D, Manganese, salts 7439-98-7D, Molybdenum, compds. 7440-02-0D, Nickel, compds. 7440-21-3D, Silicon, fluoro complexes 7440-32-6D, Titanium, fluoro complexes 7440-33-7D, Tungsten, compds. 7440-42-8D, Boron, fluoro complexes 7440-47-3D, Chromium, compds. 7440-48-4D, Cobalt, compds. 7440-58-6D, Hafnium, fluoro complexes 7440-67-7D, Zirconium, fluoro complexes 7440-70-2D, Calcium, salts 7585-20-8, Zirconium acetate 7631-86-9, Silica, uses 7727-43-7, Barium sulfate 12021-95-3 13463-67-7, Titania, uses 13822-56-5, 3-Aminopropyltrimethoxysilane 15879-01-3, Triethanolamine titanate 17439-11-1 21645-51-2, Aluminum hydroxide, uses 22829-17-0, Ammonium zirconium carbonate 38497-57-3, Titanium acetate 73215-17-5 133962-46-6  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 79-10-7D, Acrylic acid, esters, polymers 9002-89-5, Polyvinyl alcohol 9002-98-6, Polyethylenimine 9003-39-8, Polyvinylpyrrolidone 9003-53-6, Polystyrene 9011-05-6, Urea resin 25608-40-6, Polyaspartic acid 26063-13-8, Polyaspartic acid 59269-51-1, Polyvinylphenol  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 9003-01-4, Polyacrylic acid 9010-77-9, Acrylic acid-ethylene copolymer 11101-13-6 12781-95-2 27936-88-5, Acrylic acid-vinylphosphonic acid copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 12597-69-2, Steel, miscellaneous  
RL: MSC (Miscellaneous)  
(substrate; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 9002-86-2, PVC  
RL: TEM (Technical or engineered material use); USES (Uses)  
(top layers; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(wax, anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

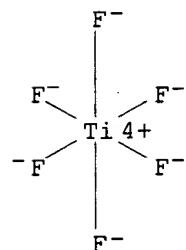
IT 17439-11-1

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(anticorrosive primer component; pretreating with anticorrosive primers and subsequently coating metallic surfaces with a paint-type coating prior to forming)

RN 17439-11-1 HCPLUS

CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

●2 H<sup>+</sup>

L60 ANSWER 8 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 2002:290758 HCPLUS

DN 136:302787

TI Additional etching to decrease polishing time for shallow-trench isolation in semiconductor processing

IN Kuehne, Stephen C.; Maury, Alvaro; Shive, Scott F.

PA Agere Systems Guardian Corp., USA

SO U.S., 15 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01L021-76

NCL 438427000

CC 76-3 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6372605	B1	20020416	US 2000-603340	20000626
PRAI	US 2000-603340		20000626		

AB During formation of shallow-trench isolation (STI) structures during semiconductor processing, an addnl. oxide-redn. etching step was performed prior to chem.-mech. processing to lower the polishing time. In one implementation wet-etching and/or sputter etch-back (SEB) was performed prior to applying a reverse-tone mask. In another implementation a wet etching step was performed after the reverse-tone mask is stripped. One significant result of each of these steps is a redn. in the height and width of at least some of the oxide horns that remain after the reverse-tone mask is stripped. As such, the oxide structures that need to be planarized during CMP will be smaller than those of the prior art.

Also, since the resulting oxide structures that need to be planarized by CMP processing are smaller, the oxide layer can be initially applied at a smaller thickness than that of the prior art. As such, the duration of CMP processing can be correspondingly shorter, resulting in polished semiconductor wafer surfaces with greater uniformity than that provided by the prior art.

ST etching oxide chem mech polishing semiconductor device fabrication  
IT Dielectric films  
Etching  
Redox reaction  
Semiconductor device fabrication  
(addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT **Oxides (inorganic), processes**  
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process); USES (Uses)  
(addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT Noble gases, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT Polishing  
(chem.-mech.; addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT Etching  
(dry; addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT Sputtering  
(etching; addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT Hydrocarbons, processes  
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(fluoro; addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT Etching  
(sputter; addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT **7631-86-9, Silicon dioxide, processes**  
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process); USES (Uses)  
(addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)  
IT 630-08-0, Carbon monoxide, processes **7664-39-3, Hydrogen fluoride, processes**  
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE  
(1) Anon; DE 010011642 A1 2000 HCPLUS  
(2) Anon; JP 164690 A 2000  
(3) Chen; US 6169012 B1 2001 HCPLUS  
(4) Jang; US 6004863 A 1999 HCPLUS

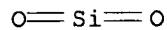
- (5) Jang; US 6043133 A 2000 HCAPLUS
- (6) Karlsson; US 6124183 A 2000 HCAPLUS
- (7) Kim; US 6071792 A 2000 HCAPLUS
- (8) Lin; US 6048771 A 2000 HCAPLUS
- (9) Sahota; US 5923993 A 1999 HCAPLUS
- (10) Shoda; US 6150072 A 2000 HCAPLUS
- (11) Sugishima; US 4352724 A 1982 HCAPLUS
- (12) Weigand; US 5851899 A 1998 HCAPLUS
- (13) Yang; US 6057210 A 2000 HCAPLUS
- (14) Yang; US 6159822 A 2000 HCAPLUS
- (15) Yang; US 6171929 B1 2001 HCAPLUS
- (16) Yao; US 6048775 A 2000 HCAPLUS

IT 7631-86-9, Silicon dioxide, processes

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process); USES (Uses)  
 (addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, processes

RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (addnl. etching to decrease polishing time for shallow-trench isolation in semiconductor processing)

RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L60 ANSWER 9 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:245610 HCAPLUS

DN 136:393880

TI Stiction-free combination of aqueous and vapor phase sacrificial oxide removal for MEMS devices

AU Anon.

CS UK

SO Research Disclosure (2002), 455(March), 420 (No. 455061)  
 CODEN: RSDSBB; ISSN: 0374-4353

PB Kenneth Mason Publications Ltd.

DT Journal; Patent

LA English

CC 76-3 (Electric Phenomena)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI RD 455061 20020310

PRAI RD 2002-455061 20020310

AB Basic methods for removing SiO<sub>2</sub> from MEMS devices is described. The striction caused by surface tension of the liq. can be avoided by using a combination of the aq. HF process and the vapor phase HF release process.

ST MEMS device vapor phase oxide removal striction redn  
IT Micromachines  
(microelectromech. devices; striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
IT Cleaning  
Etching  
Semiconductor device fabrication  
Surface tension  
(striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
IT Oxides (inorganic), processes  
RL: REM (Removal or disposal); PROC (Process)  
(striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
IT 7664-39-3, Hydrogen fluoride, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
IT 7631-86-9, Silica, processes  
RL: REM (Removal or disposal); PROC (Process)  
(striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
IT 7664-39-3, Hydrogen fluoride, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
RN 7664-39-3 HCPLUS  
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9, Silica, processes  
RL: REM (Removal or disposal); PROC (Process)  
(striction-free combination of aq. and vapor phase sacrificial oxide removal for MEMS devices)  
RN 7631-86-9 HCPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

L60 ANSWER 10 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 2002:236858 HCPLUS  
DN 136:266656  
TI High throughput screening method  
IN Lagriff, John Robert; Ruud, James Anthony; Sun, Xiao-Dong; Carnahan, James Claude  
PA General Electric Company, USA  
SO Eur. Pat. Appl., 20 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM B01J019-00  
ICS C23G001-00

## CC 56-6 (Nonferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1190763	A1	20020327	EP 2001-307856	20010914
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6420178	B1	20020716	US 2000-666381	20000920
	BR 2001004143	A	20020430	BR 2001-4143	20010919
	US 2002115221	A1	20020822	US 2002-126349	20020422
PRAI	US 2000-666381	A	20000920		
AB	A liq. chem. stripping or cleaning soln. is selected by combinatorial high throughput screening. A high throughput screening well array assembly includes (A) a metal substrate and (B) a mask that defines an array of wells on the substrate. A combinatorial high throughput screening system includes (A) a metal substrate and (B) a mask that defines an array of wells on the substrate and a reaction vessel to receive the well array assembly.				
ST	turbine <b>coating removal stripping</b> agent screening system				
IT	Polyoxalkylenes, uses RL: TEM (Technical or engineered material use); USES (Uses) (Plurafac; high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	Apparatus (combinatorial; high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	Cleaning Coating materials Turbines (high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	Fluoropolymers, uses Metals, uses RL: DEV (Device component use); USES (Uses) (high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	Reaction (micro scale, of an array of candidate stripping or cleaning soln.; high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	Coating removers (selection of; high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	128985-79-5 RL: DEV (Device component use); USES (Uses) (PtAl-coated; high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	7664-38-2, Phosphoric acid, uses 9002-84-0 <b>16961-83-4</b> , Hydrofluorosilicic acid 94766-95-7 RL: DEV (Device component use); USES (Uses) (high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				
IT	39283-42-6, Rodine RL: TEM (Technical or engineered material use); USES (Uses) (high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)				

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; PATENT ABSTRACTS OF JAPAN 1984, V008(187), PC-240
- (2) Boliden Ab; EP 0029418 A 1981 HCPLUS
- (3) Caruana, C; CHEMICAL ENGINEERING PROGRESS 1998, V94(10), P11
- (4) Goldwasser, I; US 5985356 A 1999 HCPLUS
- (5) Kawasaki Seitetsu Kk; JP 59083783 A 1984 HCPLUS
- (6) Nexstar Pharmaceuticals Inc; WO 9720076 A 1997 HCPLUS
- (7) Nippon Steel Corp; EP 0513753 A 1992 HCPLUS

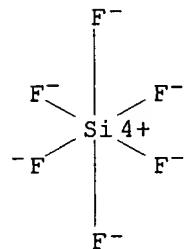
IT 16961-83-4, Hydrofluorosilicic acid

RL: DEV (Device component use); USES (Uses)

(high throughput screening and optimizing of soln. mixts. for chem. stripping or cleaning of gas turbine component coating)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

●2 H<sup>+</sup>

L60 ANSWER 11 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 2002:107253 HCPLUS

DN 136:169902

TI Recovery of alumina, titania and ferric oxide from bauxite and/or red mud

IN Jha, Animesh; Antony, Malpan Pailo; Thathavadkar, Vilas D.

PA University of Leeds, UK

SO PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C01F007-08

ICS C01G023-047; C01G049-06

CC 49-3 (Industrial Inorganic Chemicals)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002010068	A1	20020207	WO 2001-GB3370	20010730
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,			

BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI GB 2000-18592 A 20000729

AB Alumina, titania, and ferric oxide can be recovered from bauxite and/or red mud by roasting the mineral ore in the presence of an alkali at 1150 K, extg. the desired **metal** salt produced in step using water as a solvent, pptn. of a hydroxide salt, and converting the hydroxide salt into an appropriate oxide by calcining. The alkali is a group IA or IIA **metal** carbonate, preferably Na<sub>2</sub>CO<sub>3</sub> or K<sub>2</sub>CO<sub>3</sub>. An inorg. acid is used for the pptn. step, such as HF, HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, or preferably CO<sub>2</sub>. Following the recovery of alumina, titania and ferric oxide are recovered sequentially from a H<sub>2</sub>SO<sub>4</sub>-based slurry of the dried filtrate.

ST alumina titania ferric oxide purifn mineral ore; bauxite red mud  
**metal** oxide recovery roasting carbonate

IT Firing (heat treating)  
(ore; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT Red mud (bauxite processing residue)  
(processing of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT Bauxite  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(processing of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT Oxides (inorganic), preparation  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(purifn. of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT Leaching  
(recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT 124-38-9, Carbon dioxide, reactions 7647-01-0, Hydrochloric acid, reactions 7664-39-3, Hydrofluoric acid, reactions 7664-93-9, Sulfuric acid, reactions 7697-37-2, Nitric acid, reactions  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(pptg. agent; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT 1309-37-1P, Ferric oxide, preparation 1344-28-1P, Alumina, preparation 13463-67-7P, Titania, preparation  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(purifn. of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT 463-79-6D, Carbonic acid, alkali **metal** or alk. earth salts  
497-19-8, Sodium carbonate, reactions  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT 1305-78-8, Calcium oxide, reactions  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT (Reactant or reagent)

(recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT 584-08-7, Potassium carbonate  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(removal of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

IT 1309-48-4, Magnesium oxide, reactions 7631-86-9,  
Silica, reactions  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); REM (Removal or disposal);  
PROC (Process); RACT (Reactant or reagent)  
(removal of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Blancs de Zinc de La Mediterra; GB 848230 A 1960  
(2) McDowell, W; US 4254088 A 1981 HCPLUS  
(3) Monolith Portland Midwest Comp; GB 601968 A 1948 HCPLUS  
(4) Sugahara, Y; US 4265864 A 1981 HCPLUS  
(5) Zimmer, E; US 4119698 A 1978 HCPLUS

IT 7664-39-3, Hydrofluoric acid, reactions  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(pptg. agent; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

RN 7664-39-3 HCPLUS  
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 13463-67-7P, Titania, preparation  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(purifn. of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

RN 13463-67-7 HCPLUS  
CN Titanium oxide (TiO<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IT 7631-86-9, Silica, reactions  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); REM (Removal or disposal);  
PROC (Process); RACT (Reactant or reagent)  
(removal of; recovery of alumina, titania and ferric oxide from bauxite and/or red mud)

RN 7631-86-9 HCPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L60 ANSWER 12 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:900210 HCAPLUS  
 DN 136:9622  
 TI Acidic etching for selective **removal** of aluminide diffusion  
     coating from superalloy substrate  
 IN Kool, Lawrence Bernard; Ruud, James Anthony; Lagraff, John Robert  
 PA General Electric Company, USA  
 SO Eur. Pat. Appl., 12 pp.  
     CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C23F001-44  
     ICS F01D005-00; F01D025-00  
 CC 56-6 (**Nonferrous Metals and Alloys**)  
 FAN.CNT 1  

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1162286	A1	20011212	EP 2001-304773	20010531
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002053985	A2	20020219	JP 2001-173362	20010608
PRAI	US 2000-591531	A	20000609		

 AB A diffusion or overlay coating on a superalloy substrate is selectively removed by acidic etching with aq. bath contg. a **fluoro acid of Si, Ge, Ti, Zr, Al, and/or Ga, esp. H<sub>2</sub>SiF<sub>6</sub>**. The acidic bath optionally contains addnl. H<sub>3</sub>PO<sub>4</sub>, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, or other inorg. acids. The process is suitable for selective removal of worn aluminide or Ni-Cr-Al-Y type coating on superalloy gas-turbine parts, or optionally on acid-resistant polymer substrates. The Ni-Co-Cr-Al-Y alloy coating .apprx.250 .mu.m thick on cast Ni-superalloy parts was removed in 3 h at 80.degree. by acidic etching in the stirred aq. bath contg. H<sub>2</sub>SiF<sub>5</sub> and H<sub>3</sub>PO<sub>4</sub>, with no corrosion of the superalloy substrate.  
 ST superalloy acidic etching **removal** worn aluminide **coating**; fluoro acid etching worn alloy **coating removal**  
 IT Polymers, processes  
     RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
     (alloy **coating** on, etching for **removal** of; acidic etching for **removal** of aluminide diffusion **coating** from superalloy substrate)  
 IT Etching  
     (alloy **coating removal** by; acidic etching for **removal** of aluminide diffusion **coating** from superalloy substrate)  
 IT Turbines  
     (blades, alloy **coating** on, etching for **removal** of; acidic etching for **removal** of aluminide diffusion **coating** from superalloy substrate)  
 IT Coating process  
     (diffusion, aluminide alloys; acidic etching for **removal** of aluminide diffusion **coating** from superalloy substrate)  
 IT Sulfonic acids, uses

*applicant*      *\* Date NG*

RL: MOA (Modifier or additive use); USES (Uses)  
(etching bath contg.; acidic etching for removal of aluminide diffusion coating from superalloy substrate)

IT Coating removers  
(for aluminide alloys; acidic etching for removal of aluminide diffusion coating from superalloy substrate)

IT Cast alloys  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(superalloys, coating on; acidic etching for removal of aluminide diffusion coating from superalloy substrate)

IT 64-19-7, Acetic acid, uses 6303-21-5, Phosphinic acid 7601-90-3, Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-39-3, Hydrofluoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 10034-85-2, Hydroiodic acid 10035-10-6, Hydrobromic acid, uses 13598-36-2, Phosphorous acid, uses 52861-00-4 61048-41-7 61048-42-8 76623-47-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(etching bath contg.; acidic etching for removal of aluminide diffusion coating from superalloy substrate)

IT 12021-95-3 16950-43-9 16961-83-4, Fluorosilicic acid 17439-11-1, Fluorotitanic acid  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(etching bath with; acidic etching for removal of aluminide diffusion coating from superalloy substrate)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD

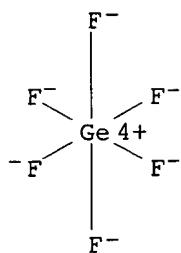
RE

(1) Anon; GALVANOTECHNIK 1988, V79(9), P2987  
(2) Baldi, A; US 3622391 A 1971 HCPLUS  
(3) Brindisi, F; US 4004956 A 1977 HCPLUS  
(4) Furukawa Electric Co Ltd; DE 2421313 A 1974 HCPLUS  
(5) Gen Electric; EP 1050604 A 2000 HCPLUS  
(6) Henkel Corp; WO 9113186 A 1991 HCPLUS  
(7) Henkel Corp; WO 9303198 A 1993 HCPLUS  
(8) Missel, L; US 3514407 A 1970 HCPLUS  
(9) Nippon Paint Co Ltd; EP 0106459 A 1984 HCPLUS  
(10) Wetinghouse Electric; FR 950328 A 1949

IT 16950-43-9 16961-83-4, Fluorosilicic acid 17439-11-1, Fluorotitanic acid  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(etching bath with; acidic etching for removal of aluminide diffusion coating from superalloy substrate)

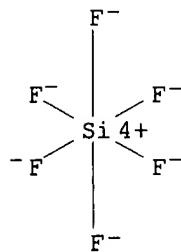
RN 16950-43-9 HCPLUS

CN Germanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



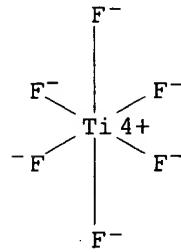
2 H<sup>+</sup>

RN 16961-83-4 HCPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



●2 H<sup>+</sup>

RN 17439-11-1 HCPLUS  
CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2 H<sup>+</sup>

L60 ANSWER 13 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 2001:763349 HCPLUS  
DN 135:309344

TI System for the preferential removal of silicon oxide  
 IN Mueller, Brian L.; Chamberlain, Jeffrey P.; Schroeder, David J.  
 PA Cabot Microelectronics Corporation, USA  
 SO PCT Int. Appl., 20 pp.  
 CODEN: PIXXD2

DT Patent

LA English

IC ICM H01L021-00

CC 66-4 (Surface Chemistry and Colloids)  
 Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001078116	A2	2001/10/18	WO 2001-US11604	20010409
	WO 2001078116	A3	20020221		
		W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
		RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
	EP 1272580	A2	20030108	EP 2001-926798	20010409
		R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR		
PRAI	US 2000-547425	A	20000411		
	WO 2001-US11604	W	20010409		
AB	A system, a compn., and a method for planarizing or polishing a composite substrate are provided. The planarizing or polishing system comprises (i) a polishing compn. comprising (a) .apprx.0.5 wt% or more of F- ions, (b) .apprx.1 wt% or more of an amine, (c) .apprx.0.1 wt% or more of a base, and (d) H2O, and (ii) an abrasive. The present invention also provides a method of planarizing or polishing a composite substrate comprising contacting the substrate with a system comprising (i) a polishing compn. comprising (a) .apprx.0.5 wt% or more of F- ions, (b) .apprx.1 wt% or more of an amine, (c) .apprx.0.1 wt% or more of a base, and (d) H2O, and (ii) an abrasive.				
ST	polishing planarizing composite semiconductor substrate preferential removal silicon oxide				
IT	Abrasives (additives of compns.; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide )				
IT	Amines, processes RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (additives of compns.; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide )				
IT	Alcohols, processes RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (amino, compn. for polishing; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)				
IT	Mixing				

(blending abrasive in polishing pad; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Surfactants  
(compn. for polishing; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Chlorates  
Chromates  
Permanganates  
Peroxides, processes  
Peroxysulfates  
Tannins  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(compn. for polishing; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Hydrocarbons, processes  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(fluoro, polishing pad; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Group IIIA element compounds  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(gallates, compn. for polishing; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Polyamides, processes  
Polycarbonates, processes  
Polyesters, processes  
Polyethers, processes  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(polishing pad; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Polyurethanes, processes  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(rheol. control agents; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Composites  
Electric insulators  
(**substrate**; system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT Polishing  
(system, compn. and method of planarizing and polishing for preferential **removal** of silicon **oxide**)

IT 1306-38-3, Ceria, processes 1309-48-4, Magnesia, processes 1310-53-8, Germania, processes 1314-23-4, Zirconia, processes 1344-28-1, Alumina, processes 13463-67-7, Titania, processes  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(abrasives; system, compn. and method of planarizing and polishing for

preferential removal of silicon oxide)

IT 16984-48-8, Fluoride, processes  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(additives of compns.; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide )

IT 51-17-2, Benzimidazole 75-59-2, Tetramethylammonium hydroxide 77-92-9, Citric acid, processes 78-96-6, Isopropanolamine 87-66-1, Pyrogallol 87-69-4, Tartaric acid, processes 88-99-3, Phthalic acid, processes 95-14-7, 1H-Benzotriazole 100-37-8, Diethylaminoethanol 108-01-0, Dimethylaminoethanol 109-83-1, Methylaminoethanol 126-44-3, Citrate, processes 141-43-5, Ethanolamine, processes 149-61-1, Malate 149-91-7, Gallic acid, processes 156-80-9, Malonate, processes 497-19-8, Sodium carbonate, processes 526-95-4, Gluconic acid 563-69-9, Carbonoperoxoic acid 608-59-3, Gluconate 1310-58-3, Potassium hydroxide, processes 1310-73-2, Sodium hydroxide, processes 1332-29-2, Tin oxide 1336-21-6, Ammonium hydroxide 1341-49-7, Ammonium hydrogen bifluoride 3179-63-3 3198-29-6, processes 6915-15-7, Malic acid 7005-47-2, 2-Dimethylamino-2-methyl-1-propanol 7601-90-3, Perchloric acid, processes 7664-38-2, Phosphoric acid, processes 7664-39-3, Hydrogen fluoride, processes 7782-68-5, Iodic acid 7789-23-3, Potassium fluoride 7789-29-9, Potassium fluoride (K(HF<sub>2</sub>)) 12021-95-3 12125-01-8, Ammonium fluoride 12674-33-8, Perboric acid 13444-71-8, Periodic acid 13746-66-2, Potassium ferricyanide 15477-76-6, Phosphonate 15541-45-4, Bromate 16068-46-5, Potassium phosphate 16872-11-0 **16961-83-4**, Fluosilicic acid **17439-11-1**, Fluorotitanic acid 19445-25-1, Perbromic acid 21351-79-1, Cesium hydroxide 37306-44-8, Triazole  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(compn. for polishing; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide )

IT 7631-86-9, Silica, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(fumed, Cabot's Semi-Sperse.COPYRG'T. 25, Cab-O-Sperse SC-1; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)

IT 7429-90-5, Aluminum, processes 7439-88-5, Iridium, processes 7440-06-4, Platinum, processes 7440-18-8, Ruthenium, processes 7440-25-7, Tantalum, processes 7440-32-6, Titanium, processes 7440-33-7, Tungsten, processes 7440-50-8, Copper, processes 7440-57-5, Gold, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(metal substrate polishing; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)

IT 9002-86-2, Polyvinyl chloride 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9003-53-6, Polystyrene 24981-14-4, Polyvinyl fluoride  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(polishing pad; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)

IT 10344-93-1, Acrylate, processes  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(polymer, polishing pad, rheol. control agents, vinyl; system, compn.

and method of planarizing and polishing for preferential removal of silicon oxide)

IT 409-21-2, Silicon carbide (SiC), processes 11104-08-8, Nickel phosphide 11116-16-8, Titanium nitride 11130-73-7, Tungsten carbide 12033-62-4, Tantalum nitride 37359-53-8, Tungsten nitride

RL: PEP (Physical, engineering or chemical process); PROC (Process) (substrate polishing; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)

IT 622-93-5

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)

IT 7732-18-5, Water, processes

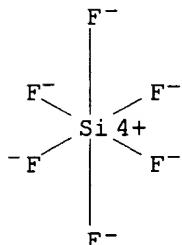
RL: PEP (Physical, engineering or chemical process); PROC (Process) (system, compn. and method of planarizing and polishing for preferential removal of silicon oxide)

IT 16961-83-4, Fluosilicic acid 17439-11-1, Fluorotitanic acid

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (compn. for polishing; system, compn. and method of planarizing and polishing for preferential removal of silicon oxide )

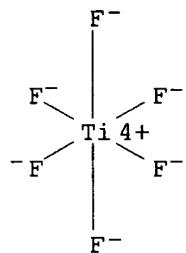
RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



RN 17439-11-1 HCPLUS

CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

2  $H^+$ 

L60 ANSWER 14 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:704555 HCAPLUS  
 DN 135:361233  
 TI A method of removing metal ions from silicate glasses for recycling by liquid-phase deposition  
 AU Homma, T.  
 CS Center for Informative and Environmental Materials, Faculty of Engineering, Department of Electronic Engineering, Shibaura Institute of Technology, Research Organization for Advanced Engineering, Minato-ku, Tokyo, 108-8548, Japan  
 SO Journal of Non-Crystalline Solids (2001), 291(1,2), 25-31  
 CODEN: JNCSBJ; ISSN: 0022-3093  
 PB Elsevier Science B.V.  
 DT Journal  
 LA English  
 CC 57-1 (Ceramics)  
 Section cross-reference(s): 60  
 AB A method of removing metal ions from silicate glasses for recycling was studied. This method utilizes a liq.-phase deposition (LPD) technique using a hydrofluosilicic acid ( $H_2SiF_6$ ) aq. soln. supersatd. with silica. Silicate glass powder prep'd. from a glass bottle was dissolved in aq. hydrofluoric acid (HF) soln. Fluorinated silicon oxide (SiOF) sepd. from the  $H_2SiF_6$ , and then an LPD-SiOF gel was formed in the supersatd.  $H_2SiF_6$  aq. soln. Almost all ratios of metals to silicon (Si) were reduced by .gtoreq.1 order of magnitude. The LPD-SiOF powder formed by drying the LPD-SiOF gel at 23.degree.C showed a different chem. bonding structure than that of the initial silicate glass powder. The LPD-SiOF powder showed a cluster structure of spheres 1-2 .mu.m in diam. A possible mechanism for removal of the non-Si primary component metal oxides and other impurity metal ions is proposed. The features of this method and a possible application for recycled silica are also discussed.  
 ST silica recovery silicate glass metal **oxide** liq phase removal  
 IT Oxides (inorganic), processes  
 RL: REM (Removal or disposal); PROC (Process)  
 (impurity; liq.-phase deposition method for **removing** metal ions from silicate glasses for recycling of silica)  
 IT Recycling  
 (liq.-phase deposition method for **removing** metal ions from silicate glasses for recycling of silica)

IT Silicate glasses  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)

IT 116305-88-5P, Silicon fluoride oxide  
RL: PNU (Preparation, unclassified); PREP (Preparation)  
(gel, intermediate phase; liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)

IT 7664-39-3, Hydrofluoric acid, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(glass dissoln. agent; liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)

IT 7429-90-5, Aluminum, processes 7439-89-6, Iron, processes 7439-92-1,  
Lead, processes 7439-93-2, Lithium, processes 7439-95-4, Magnesium,  
processes 7439-96-5, Manganese, processes 7440-02-0, Nickel, processes  
7440-23-5, Sodium, processes 7440-24-6, Strontium, processes  
7440-32-6, Titanium, processes 7440-36-0, Antimony, processes  
7440-39-3, Barium, processes 7440-42-8, Boron, processes 7440-47-3,  
Chromium, processes 7440-48-4, Cobalt, processes 7440-50-8, Copper,  
processes 7440-55-3, Gallium, processes 7440-56-4, Germanium,  
processes 7440-66-6, Zinc, processes 7440-67-7, Zirconium, processes  
RL: REM (Removal or disposal); PROC (Process)  
(impurity; liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)

IT 7631-86-9P, Silica, preparation  
RL: PUR (Purification or recovery); PREP (Preparation)  
(liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; The Handbook of Glass Manufacture, 3rd Ed 1984, V1, P5
- (2) Doremus, R; Glass Science, 2nd Ed 1994, P13
- (3) Doremus, R; Glass Science, 2nd Ed 1994, P94
- (4) Goda, T; Proceedings of Materials Research Society Symposium 1988, V105, P283 HCAPLUS
- (5) Hishinuma, A; Proceedings of Applied Surface Science Conference 1991, V48&49, P405
- (6) Homma, T; IEEE Trans Instrum Meas 1998, V47, P698 HCAPLUS
- (7) Homma, T; J Electrochem Soc 1993, V140, P2410 HCAPLUS
- (8) Homma, T; J Electrochem Soc 2000, V147, P1141 HCAPLUS
- (9) Homma, T; Thin Solid Films 1994, V249, P15 HCAPLUS
- (10) Kawahara, H; Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), Glasses for Optoelectronics II 1991, V1513, P198 HCAPLUS
- (11) Lave, L; J Environ Eng 1999, V125, P944 HCAPLUS
- (12) Meyer, K; Ber Bunsenges Phys Chem 1996, V100, P1523 HCAPLUS
- (13) Nagayama, H; J Electrochem Soc 1988, V138, P2013
- (14) Nyquist, R; Infrared Spectra of Inorganic Compounds 1971, P9
- (15) Payne, D; Glass Technol 1994, V35, P230 HCAPLUS
- (16) Pliskin, W; J Electrochem Soc 1965, V112, P1013 HCAPLUS
- (17) Sze, S; Semiconductor Devices Physics and Technology 1985, P452
- (18) Yeh, C; IEEE Trans Electron Devices 1994, V41, P173 HCAPLUS
- (19) Yeh, C; IEEE Trans Electron Devices 1995, V42, P307 HCAPLUS
- (20) Yeh, C; J Electrochem Soc 1994, V141, P2410

IT 7664-39-3, Hydrofluoric acid, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)

(glass dissoln. agent; liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)

RN 7664-39-3 HCPLUS  
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9P, Silica, preparation  
 RL: PUR (Purification or recovery); PREP (Preparation)  
 (liq.-phase deposition method for removing metal ions from silicate glasses for recycling of silica)  
 RN 7631-86-9 HCPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L60 ANSWER 15 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 2001:676241 HCPLUS  
 DN 135:228865  
 TI Acid treatment of activated carbon for its use in gas purification  
 IN Monereau, Christian; Moreau, Serge  
 PA L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Fr.  
 SO Eur. Pat. Appl., 12 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA French  
 IC ICM C01B031-12  
 CC 49-1 (Industrial Inorganic Chemicals)  
 Section cross-reference(s): 48  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1132341	A1	20010912	EP 2001-400517	20010228
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	FR 2806072	A1	20010914	FR 2000-2925	20000307
	FR 2806072	B1	20020607		
	US 2002010093	A1	20020124	US 2001-799736	20010307

PRAI FR 2000-2925 A 20000307  
 AB Activated carbon for purifn. of hydrogen, syngas from reforming or cracking of hydrocarbons, nitrogen or air is treated with acid to remove metal oxide impurities, such as SiO<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub>, Na<sub>2</sub>O, CuO, CaO, MgO and K<sub>2</sub>O. The source of carbon can be from natural carbons (coal, lignite), or synthetic carbons, esp. those derived from polymers or plant sources (esp. coconut shells). Acids used for the treatment are HCl, HF, HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub>. The mixt. is neutralized using alkali or earth alkali hydroxide solns. or alkali or earth alkali salts of weak acids, subsequently rinsed with distd. or deionized water and dried at 80-100 .degree.C. The total residual amt. of impurities should be less than 1.5 wt.%, less than 0.1 wt.% for each metal oxide and less than 0.03 wt.% of iron oxide. The adsorption process using

the carbon is a PSA or TSA-type process using 2-12 different adsorbent layers, such as X and A-type zeolites, faujasite exchanged with at least 70% lithium or calcium, faujasite with a Si/Al ratio between 1-1.25, active alumina or silica gel. The particle size of the carbon granules should be 1-5 mm. This process is used to remove impurities, esp. H<sub>2</sub>S, COS and mercaptans from gases.

ST carbon active gas purifn nitrogen hydrogen air; acid treatment metal oxide carbon active gas purifn; PSA TSA adsorbent carbon active gas purifn; mercaptan removal gas active carbon; hydrogen sulfide removal gas active carbon

IT A zeolites  
Faujasite-type zeolites  
X zeolites  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(adsorbent; acid treatment of activated carbon for its use in gas purifn.)

IT Alkali metal hydroxides  
Alkaline earth hydroxides  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(neutralization agent; acid treatment of activated carbon for its use in gas purifn.)

IT Adsorption  
(pressure-swing; acid treatment of activated carbon for its use in gas purifn.)

IT Air  
Synthesis gas  
(purifn. of; acid treatment of activated carbon for its use in gas purifn.)

IT Thiols (organic), processes  
RL: PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process)  
(removal of; acid treatment of activated carbon for its use in gas purifn.)

IT Adsorption  
(thermal-swing; acid treatment of activated carbon for its use in gas purifn.)

IT Alkali metal salts  
Alkaline earth salts  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(weak acid, neutralization agent; acid treatment of activated carbon for its use in gas purifn.)

IT 7647-01-0, Hydrochloric acid, reactions 7664-39-3, Hydrofluoric acid, reactions 7664-93-9, Sulfuric acid, reactions 7697-37-2, Nitric acid, reactions  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(acid treatment of activated carbon for its use in gas purifn.)

IT 7440-44-0P, Carbon, preparation  
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(active; acid treatment of activated carbon for its use in gas purifn.)

IT 1333-74-0P, Hydrogen, preparation 7727-37-9P, Nitrogen, preparation  
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PREP (Preparation); PROC (Process)

(purifn. of; acid treatment of activated carbon for its use in gas purifn.)

IT 1344-28-1, Alumina, reactions 7631-86-9, Silica, reactions  
RL: PEP (Physical, engineering or chemical process); RCT  
(Reactant); REM (Removal or disposal); TEM (Technical or  
engineered material use); PROC (Process); RACT (Reactant or reagent); USES  
(Uses)  
(removal of; acid treatment of activated carbon for its use  
in gas purifn.)

IT 463-58-1, Carbon oxide sulfide, COS 7783-06-4, Hydrogen  
sulfide (H<sub>2</sub>S), processes  
RL: PEP (Physical, engineering or chemical process); REM (Removal or  
disposal); PROC (Process)  
(removal of; acid treatment of activated carbon for its use  
in gas purifn.)

IT 1305-78-8, Calcium oxide, reactions 1309-37-1, Iron  
oxide, Fe<sub>2</sub>O<sub>3</sub>, reactions 1309-48-4, Magnesium oxide,  
reactions 1313-59-3, Sodium oxide, reactions 1317-38-0,  
Copper oxide, CuO, reactions 12136-45-7, Potassium  
oxide, reactions  
RL: RCT (Reactant); REM (Removal or disposal); PROC (Process);  
RACT (Reactant or reagent)  
(removal of; acid treatment of activated carbon for its use  
in gas purifn.)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Air Liquide; WO 9745363 A 1997 HCPLUS  
(2) Anon; PATENT ABSTRACTS OF JAPAN 1980, V004(022), PC-074  
(3) Pintsch Bamag Ag; GB 949952 A 1964 HCPLUS  
(4) Toho Rayon Co Ltd; JP 54162692 A 1979 HCPLUS

IT 7664-39-3, Hydrofluoric acid, reactions  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT  
(Reactant or reagent); USES (Uses)  
(acid treatment of activated carbon for its use in gas purifn.)

RN 7664-39-3 HCPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9, Silica, reactions  
RL: PEP (Physical, engineering or chemical process); RCT  
(Reactant); REM (Removal or disposal); TEM (Technical or  
engineered material use); PROC (Process); RACT (Reactant or reagent); USES  
(Uses)  
(removal of; acid treatment of activated carbon for its use  
in gas purifn.)

RN 7631-86-9 HCPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L60 ANSWER 16 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 2001:473001 HCPLUS

KATHLEEN FULLER EIC 1700/PARKER LAW 308-4290

DN 135:64947  
 TI Epoxy-functional polymer **coating** on metal **strip** for preventing corrosion and promoting spot weldability  
 IN Hauser, Brian T.; Gray, Ralph C.; Nugent, Richard M., Jr.; White, Michael L.

PA Ppg Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 45 pp.  
 CODEN: PIXXD2

DT Patent

LA English

IC ICM C23C022-00

CC 56-6 (**Nonferrous Metals and Alloys**)

Section cross-reference(s): 42

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001046495	A2	20010628	WO 2000-US32878	20001204
	WO 2001046495	A3	20020124		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6312812	B1	20011106	US 1999-469259	19991221
	EP 1240363	A2	20020918	EP 2000-983893	20001204
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	BR 2000016910	A	20021022	BR 2000-16910	20001204
PRAI	US 1999-469259	A	19991221		
	US 1998-203833	A2	19981201		
	US 1999-133571P	P	19990511		
	US 1999-133617P	P	19990511		
	US 1999-309849	A3	19990511		
	US 1999-309850	A3	19990511		
	WO 2000-US32878	W	20001204		

AB Metal, alloy, or steel substrates are coated by: (a) pretreatment with a transition metal-contg. interlayer having Group IIIB, Group IVB, and/or lanthanide metal compds.; and (b) coating with a reaction product of epoxy-functional material with P-contg., amine-contg., and/or S-contg. compds. The pretreatment is typically based on fluorozirconic acid or fluorotitanic acid, and forms an interlayer at 0.1-500 mg/m<sup>2</sup> for promoting polymn. of the top resin coating. The 2-stage coating can be combined into a single-stage process, and is free of Cr and Ni as conventional coating components having potential pollution problems. The process is suitable for continuous coating of galvanized steel sheets by dip, spray, or roll methods with the assocd. drying and baking. The coated strip can be finished by deposition of elec.-conductive (esp. metal) powder for spot welding by elec.-resistance method.

ST epoxy functional polymer **coating** metal **strip**; transition metal compd interlayer polymer coating; polymer composite **coating** metal **strip** spot welding

IT Galvanized steel

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (coating of; epoxy-functional polymer **coating** on metal

strip for preventing corrosion)

IT Epoxy resins, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(coating with; epoxy-functional polymer coating free of Cr and Ni on metal sheets)

IT Group IIIB element compounds  
Group IVB element compounds  
Rare earth compounds  
RL: TEM (Technical or engineered material use); USES (Uses)  
(interlayer, for coating; epoxy-functional polymer coating free of Cr and Ni on metal sheets)

IT Coating materials  
(polymers; epoxy-functional polymer coating free of Cr and Ni on metal sheets)

IT Welding of metals  
(spot, polymer coating for; epoxy-functional polymer coating free of Cr and Ni on metal sheets for spot welding)

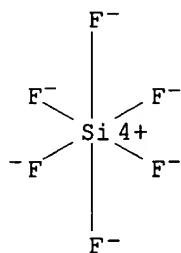
IT 7429-90-5, Aluminum, processes 7439-95-4, Magnesium, processes  
7440-66-6, Zinc, processes 12597-68-1, Stainless steel, processes  
12597-69-2, Steel, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(coating of; epoxy-functional polymer **coating** on metal  
**strip** for preventing corrosion)

IT 110-97-4D, Diisopropanol amine, derivs. 1333-83-1, Sodium bifluoride  
1341-49-7, Ammonium bifluoride 6303-21-5D, Phosphinic acid, derivs.  
7429-91-6D, Dysprosium, compds., uses 7440-00-8D, Neodymium, compds.,  
uses 7440-10-0D, Praseodymium, compds., uses 7440-19-9D, Samarium,  
compds., uses 7440-32-6D, Titanium, compds., uses 7440-45-1D, Cerium,  
compds., uses 7440-53-1D, Europium, compds., uses 7440-58-6D, Hafnium,  
compds., uses 7440-65-5D, Yttrium, compds., uses 7440-67-7D,  
Zirconium, compds., uses 7664-38-2D, Phosphoric acid, derivs., uses  
7664-39-3D, Hydrofluoric acid, salts, uses 7783-64-4D, Zirconium  
fluoride, alkali salts 7789-29-9, Potassium bifluoride 12021-95-3  
13598-36-2D, Phosphonic acid, derivs. 13826-66-9, Zirconyl nitrate  
16923-95-8, Potassium hexafluorozirconate **16961-83-4**,  
Fluorosilicic acid **17439-11-1**, Fluorotitanic acid 22829-17-0,  
Ammonium zirconium carbonate  
RL: MOA (Modifier or additive use); USES (Uses)  
(interlayer with, for resin coating; epoxy-functional polymer  
**coating** on metal **strip** for preventing corrosion)

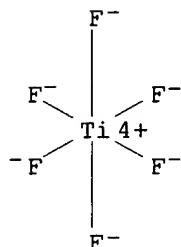
IT 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-33-7, Tungsten,  
uses 7782-42-5, Graphite, uses 12751-22-3, Iron phosphide  
RL: MOA (Modifier or additive use); USES (Uses)  
(powder, resin coating with; epoxy-functional polymer **coating**  
on metal **strip** for protection and spot weldability)

IT **16961-83-4**, Fluorosilicic acid **17439-11-1**, Fluorotitanic  
acid  
RL: MOA (Modifier or additive use); USES (Uses)  
(interlayer with, for resin coating; epoxy-functional polymer  
**coating** on metal **strip** for preventing corrosion)

RN 16961-83-4 HCAPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

RN 17439-11-1 HCAPLUS  
 CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 17 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:453366 HCAPLUS  
 DN 135:39715  
 TI Different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication  
 IN Banjac, Branko; Fischer, Frank; Schielein, Doris; Bueche, Dirk  
 PA Robert Bosch G.m.b.H., Germany  
 SO PCT Int. Appl., 34 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 IC ICM G01P015-08  
 ICS B81B003-00  
 CC 76-3 (Electric Phenomena)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001044822	A1	20010621	WO 2000-DE4171	20001124
	W: JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	DE 19960094	A1	20010705	DE 1999-19960094	19991214

EP 1169650 A1 20020109 EP 2000-988643 20001124  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO

PRAI DE 1999-19960094 A 19991214  
WO 2000-DE4171 W 20001124

AB Micromech. prodn. of layer-shaped fixed and movable electrodes (141, 143) of a semiconductor element (capacitive acceleration sensor), said electrodes lying freely in a given area on a **substrate** (11), whereby a sacrificial layer (91, 101) lying between the **substrate** (11) and the fixed and movable electrodes (142, 143) is removed in an etching step to expose the electrodes (142, 143) relative to the **substrate** (11), whereby the thickness (d1) of the sacrificial layer (91) lying in the area (A) of the fixed electrode (142) is smaller than the thickness (d2) of the sacrificial layer (91, 101) lying in the area (B) of the movable electrodes (143). The sacrificial layer (91, 101) consists of a 1st sacrificial layer (91) and a 2nd sacrificial layer (101) made of Si oxide or a phosphosilicate glass. This is done to compensate for microscopically inhomogeneous etching rates in a H<sub>2</sub>O, HF gaseous phase, which emerge as a result of intrinsic voltage gradients in doped polycryst. Si or Ge electrodes (142, 143) that are anchored on one or two sides.

ST capacitor electrode accelerometer silica sacrificial layer fabrication

IT Accelerometers

Capacitor electrodes

Capacitors

**Etching**

Semiconductor sensors

Thickness

(different sacrificial **layer** thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

IT Phosphosilicate glasses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

IT 7440-56-4, Germanium, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

IT 7631-86-9, Silicon dioxide, properties

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (**Reactant**); REM (**Removal or disposal**); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

IT 7440-21-3, Silicon, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(electrodes; different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

IT 7664-39-3, Hydrogen fluoride, processes

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); RCT (**Reactant**); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(**etchant**, gaseous; different sacrificial **layer** thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

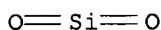
- (1) Bosch; DE 19526691 A 1997
- (2) Bosch; DE 19734113 A 1999
- (3) Etri; US 5783749 A 1998
- (4) Fraunhofer, G; DE 19730715 C 1998
- (5) Motorola; US 5550090 A 1996 HCAPLUS

IT 7631-86-9, Silicon dioxide, properties

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT (Reactant or reagent); USES (Uses) (different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, processes

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses) (etchant, gaseous; different sacrificial layer thickness under fixed and movable electrodes for capacitive acceleration sensor fabrication)

RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L60 ANSWER 18 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:421951 HCAPLUS

DN 135:160643

TI Enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liquid phase deposition

AU Huang, C. J.

CS Department of Electrical Engineering, Southern Taiwan University of Technology, Yung-Kang City, Tainan, 70101, Taiwan

SO Journal of Applied Physics (2001), 89(11, Pt. 1), 6501-6505  
CODEN: JAPIAU; ISSN: 0021-8979

PB American Institute of Physics

DT Journal

LA English

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 75

AB This study presents a method for surface passivation using SiO<sub>2</sub>. The proposed method showed great effectiveness on metal-semiconductor barrier height enhancement. A high quality SiO<sub>2</sub> layer is developed via liq. phase deposition, a method which naturally leaves a doping-level F residue in the SiO<sub>2</sub>. The addn. of F to enhance the Schottky barrier height (SBH) is 1st discussed. Exptl. results are presented. It is found that this F addn. enhances the Schottky barrier

height, which allows a larger pos. gate bias for enhancement mode metal-semiconductor field-effect transistors, thus permitting the fabrication of digital logic circuits with improved noise margins and relaxed tolerance with regard to device threshold voltage uniformity. The SBH to n-Ga arsenide (GaAs) is .apprx.0.7 eV. Finally, the effective barrier height of the metal-insulator-semiconductor structure reached 1.03 eV after annealing. The enhancement of SBH has been attributed to the formation of these stable interface layers. A model for F-enhanced SiO<sub>2</sub> SBH enhancement is also presented.

ST metal semiconductor barrier height superthin silica film gallium arsenide; liq phase deposition superthin silica film Schottky barrier height; model fluorine enhancement Schottky barrier height superthin silica film

IT Electric capacitance-potential relationship  
Electric current-potential relationship  
(Al/silica/GaAs; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT Tunneling  
(electron; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT Annealing  
Liquid phase epitaxy  
Logic circuits  
MISFET (transistors)  
Schottky diodes  
Semiconductor device fabrication  
Threshold potential  
(enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT Schottky barrier  
(height; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT Passivation  
(layer; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT Simulation and Modeling, physicochemical  
(model for fluorine enhancement of silica SBH; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT IR spectra  
(silica film by liq. phase deposition; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT 11105-41-2  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(backside contact; enhancement of metal-semiconductor barrier height with superthin silicon dioxide films deposited on gallium arsenide by liq. phase deposition)

IT 7664-39-3, Hydrofluoric acid, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(backside oxide removal; enhancement of metal-semiconductor barrier height with superthin silicon

dioxide films deposited on gallium arsenide by liq. phase deposition)

IT 1303-00-0, Gallium arsenide, processes  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (enhancement of metal-semiconductor barrier height with  
 superthin silicon dioxide films deposited on gallium arsenide by liq.  
 phase deposition)

IT 7631-86-9, Silica, properties  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
 PROC (Process)  
 (enhancement of metal-semiconductor barrier height with  
 superthin silicon dioxide films deposited on gallium arsenide by liq.  
 phase deposition)

IT 14762-94-8, Atomic fluorine, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (fluorine enhancement of silica SBH; enhancement of metal  
 -semiconductor barrier height with superthin silicon dioxide films  
 deposited on gallium arsenide by liq. phase deposition)

IT 1343-98-2, Silicic acid 10043-35-3, Boric acid, processes  
**16961-83-4**, Silicate(2-), hexafluoro-, dihydrogen  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (liq. phase deposition of silica; enhancement of metal  
 -semiconductor barrier height with superthin silicon dioxide films  
 deposited on gallium arsenide by liq. phase deposition)

IT 1336-21-6, Ammonium hydroxide  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (substrate etching; enhancement of metal  
 -semiconductor barrier height with superthin silicon dioxide films  
 deposited on gallium arsenide by liq. phase deposition)

IT 7429-90-5, Aluminum, processes  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical  
 process); PROC (Process); USES (Uses)  
 (vacuum deposit front contact; enhancement of metal  
 -semiconductor barrier height with superthin silicon dioxide films  
 deposited on gallium arsenide by liq. phase deposition)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

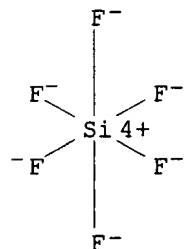
RE

- (1) Adams, A; Solid State Technol 1983, V135, P26
- (2) Andrews, J; US 3964084 1976
- (3) Chen, P; J Appl Phys 1994, V76, P5508 HCAPLUS
- (4) Costa, J; Appl Phys Lett 1991, V58, P382 HCAPLUS
- (5) Fan, J; Jpn J Appl Phys, Part 2 1988, V27, PL2125 HCAPLUS
- (6) Gyulai, J; Appl Phys Lett 1970, V17, P332 HCAPLUS
- (7) Hashizume, T; Jpn J Appl Phys, Part 1 1992, V31, P3794 HCAPLUS
- (8) Houng, M; J Appl Phys 1997, V82, P5788 HCAPLUS
- (9) Huang, C; J Appl Phys 1999, V86, P7151 HCAPLUS
- (10) Huang, C; J Vac Sci Technol A 1998, V16, P2646 HCAPLUS
- (11) Huang, C; Mater Chem Phys 2001, V70, P78 HCAPLUS
- (12) Jeng, M; J Appl Phys 1999, V86, P6261 HCAPLUS
- (13) Kalnitsky, A; J Electrochem Soc 1990, V137, P234 HCAPLUS
- (14) Konig, U; J Electrochem Soc 1983, V130, P950
- (15) Kumar, V; Solid-State Electron 1977, V20, P143 HCAPLUS
- (16) Lahav, A; J Appl Phys 1986, V60, P991 HCAPLUS
- (17) Nyquist, R; Infrared Spectra of Inorganic Compounds 1971, P13
- (18) Pulfrey, D; IEEE Trans Electron Devices 1976, V23, P587
- (19) Sakaki, H; Jpn J Appl Phys, Part 2 1981, V20, PL107 HCAPLUS
- (20) Sakata, M; Jpn J Appl Phys, Part 1 1994, V33, P3813 HCAPLUS
- (21) Sandroff, C; Appl Phys Lett 1987, V51, P33 HCAPLUS
- (22) Schottky, W; Halbleitertheorie Sperrsicht 1938, V26, P843 HCAPLUS

(23) Shannon, J; Appl Phys Lett 1974, V24, P369 HCPLUS  
 (24) Shannon, J; Appl Phys Lett 1974, V24, P369 HCPLUS  
 (25) Shannon, J; Appl Phys Lett 1974, V25, P75 HCPLUS  
 (26) Sugahara, H; J Appl Phys 1949, V69, P4349  
 (27) Svensson, S; J Appl Phys 1983, V54, P4474 HCPLUS  
 (28) Sze, S; Physics of Semiconductor Devices 1981, P250  
 (29) Sze, S; Physics of Semiconductor Devices 1981, P294  
 (30) Vaidyanathan, K; J Electrochem Soc 1977, V124, P1781 HCPLUS  
 (31) Van de Walle, R; J Appl Phys 1993, V74, P1885 HCPLUS  
 IT 16961-83-4, Silicate(2-), hexafluoro-, dihydrogen  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (liq. phase deposition of silica; enhancement of metal  
 -semiconductor barrier height with superthin silicon dioxide films  
 deposited on gallium arsenide by liq. phase deposition)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>.

L60 ANSWER 19 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 2001:178420 HCPLUS

DN 134:215951

TI Liquid compositions for removal of oxides from inter-level dielectrics

IN Jagannathan, Rangarajan; Madden, Karen P.; McCullough, Kenneth J.;  
Okorn-Schmidt, Harald F.; Pope, Keith R.; Rath, David L.

PA International Business Machines Corporation, USA

SO U.S., 5 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01L021-4763

ICS H01L021-302

NCL 438622000

CC 76-3 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6200891	B1	20010313	US 1998-133537	19980813
PRAI	US 1998-133537		19980813		

AB Oxides such as those commonly used in inter-level dielecs. may be removed employing a liq. compn. contg. a fluoride-contg. compd. and an org. solvent. Preferred compns. are substantially nonaq. and include an anhydride. Improved methods for selective removal of oxides, esp. for

removal of Si oxides where pre-exposed (or conductive metal-contg.) features are present, where metal (conductive metal-contg.) features are to be exposed by the desired oxide removal, or where the silicon oxide otherwise contacts metal (or conductive metal - contg.) features are provided.

ST semiconductor device fabrication etching removal dielec oxide

IT Alcohols, processes  
Aldehydes, processes  
Amines, processes  
Esters, processes  
Ethers, processes  
Hydrocarbons, processes  
Imides  
Ketones, processes  
Lactones  
Thiols (organic), processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(etching solvent; liq. compns. for removal of oxides from inter-level dielecs.)

IT Borates  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(fluoro-, etchant; liq. compns. for removal of oxides from inter-level dielecs.)

IT Electric insulators  
Etching  
Integrated circuits  
Interconnections (electric)  
Semiconductor device fabrication  
(liq. compns. for removal of oxides from inter-level dielecs.)

IT Oxides (inorganic), processes  
RL: REM (Removal or disposal); PROC (Process)  
(liq. compns. for removal of **oxides** from inter-level dielecs.)

IT 7440-25-7, Tantalum, processes 7440-33-7, Tungsten, processes  
7440-50-8, Copper, processes 11099-19-7 12033-62-4, Tantalum nitride (TaN) 25583-20-4, Titanium nitride (TiN)  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(device conductive layer; liq. compns. for removal of oxides from inter-level dielecs.)

IT 7782-44-7, Oxygen, processes 10028-15-6, Ozone, processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(dielec. layer fabrication; liq. compns. for removal of oxides from inter-level dielecs.)

IT 78-10-4, Tetraethoxysilane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(dielec. layer fabrication; liq. compns. for removal of oxides from inter-level dielecs.)

IT 110-18-9, N,N,N',N'-Tetramethylethylenediamine 429-42-5, Tetrabutylammonium tetrafluoroborate **7664-39-3**, Hydrofluoric acid, processes 7783-47-3, Tin bifluoride 12125-01-8, Ammonium fluoride 16872-11-0, Fluoroboric acid 17949-86-9, Aluminum fluoride (Al<sub>2</sub>F<sub>6</sub>) 127386-54-3, Antimony fluoride  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(etchant; liq. compns. for removal of oxides from inter-level dielecs.)

IT 75-09-2, Methylene chloride, processes 88-99-3D, Phthalic acid, Me and Et esters 93-58-3, Methyl benzoate 96-47-9, 2-Methyltetrahydrofuran 96-48-0 100-21-0D, Terephthalic acid, Me and Et esters 100-51-6, Benzyl alcohol, processes 108-24-7, Acetic anhydride 108-32-7, Propylene carbonate 108-94-1, Cyclohexanone, processes 111-96-6, Diglyme 120-92-3, Cyclopentanone 121-91-5D, Isophthalic acid, Me and Et esters 872-50-4, N-Methylpyrrolidone, processes 2591-86-8, N-Formylpiperidine 4394-85-8, N-Formylmorpholine  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(etching solvent; liq. compns. for removal of oxides from inter-level dielecs.)

IT 59271-56-6, Phosphorus silicon oxide 65381-39-7, Boron silicon oxide 197389-01-8, Boron phosphorus silicon oxide  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(inter-level dielec.; liq. compns. for removal of oxides from inter-level dielecs.)

IT 7631-86-9, Silica, processes  
RL: REM (Removal or disposal); PROC (Process)  
(liq. compns. for removal of oxides from inter-level dielecs.)

IT 7429-90-5, Aluminum, uses 7440-32-6, Titanium, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(liq. compns. for removal of oxides from inter-level dielecs.)

RE.CNT 64, THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

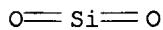
(1) Anon; JP 56161677 1981  
(2) Anon; JP 58110078 1983  
(3) Anon; JP 58143532 1983 HCPLUS  
(4) Anon; JP 58204450 A2 1983  
(5) Anon; DE 238622 1986  
(6) Anon; Research Disclosure 1991, 321  
(7) Aoyama; US 4334349 1982 HCPLUS  
(8) Armant; US 4971715 1990 HCPLUS  
(9) Bohannon; US 5348619 1994 HCPLUS  
(10) Chang; US 4962049 1990  
(11) Chino; US 5308440 1994  
(12) Coldren; US 4285763 1981 HCPLUS  
(13) Cronin; US 4985990 1991  
(14) Dao; US 5824601 1998  
(15) Deckert; US 4269654 1981 HCPLUS  
(16) Delehanty; US 5780363 1998 HCPLUS  
(17) Deslauriers; US 4472237 1984 HCPLUS  
(18) El-Kareh, B; Fundamentals of Semiconductor Processing Technologies 1995, P565  
(19) Fujimoto; US 4985113 1991 HCPLUS  
(20) Gagda; US 4230523 1980 HCPLUS  
(21) Galfo; US 4325984 1982 HCPLUS  
(22) Gotoh; US 5650041 1997 HCPLUS  
(23) Gupta; US 5037506 1991 HCPLUS  
(24) Hause; US 6013574 2000 HCPLUS  
(25) Havemann; US 5461003 1995 HCPLUS  
(26) Hosaka; US 6020104 2000 HCPLUS  
(27) Iida; US 4267013 1981 HCPLUS  
(28) Ishii; US 5475267 1995  
(29) Jimbo; US 5756402 1998 HCPLUS  
(30) Kaanta; US 4987101 1991

- (31) Kadomura; US 5217570 1993 HCPLUS
- (32) Kern; US 4395304 1983 HCPLUS
- (33) Kohara; US 5387361 1995 HCPLUS
- (34) Lee; US 5334332 1994 HCPLUS
- (35) Maeda; US 3979241 1976
- (36) Man; US 5533635 1996 HCPLUS
- (37) McConnell; US 4899767 1990
- (38) Mlcak; US 5338416 1994 HCPLUS
- (39) Molinaro; US 5082518 1992 HCPLUS
- (40) Nagano; US 5012692 1991
- (41) Nulty; US 5468342 1995 HCPLUS
- (42) Oka; US 5019479 1991 HCPLUS
- (43) Okuda; US 5544776 1996
- (44) Propst; US 5348627 1994 HCPLUS
- (45) Propst; US 5431766 1995 HCPLUS
- (46) Radigan; US 4351696 1982 HCPLUS
- (47) Retajczyk; US 3676240 1972 HCPLUS
- (48) Sachdev; US 4692205 1987 HCPLUS
- (49) Saia; US 4444618 1984 HCPLUS
- (50) Searson; US 5139624 1992 HCPLUS
- (51) Seaton; US 5591299 1997
- (52) Somashekhar; Electrochem Soc 1996, V143(9), P2885 HCPLUS
- (53) Stoltz; US 5407860 1995
- (54) Suzuki; US 3935117 1976 HCPLUS
- (55) Takada; US 4547260 1985 HCPLUS
- (56) Tsai; US 5753418 1998 HCPLUS
- (57) Ward; US 5419779 1995 HCPLUS
- (58) Ward; US 5556482 1996 HCPLUS
- (59) Ward; US 5571447 1996 HCPLUS
- (60) Ward; US 5698503 1997 HCPLUS
- (61) Ward; US 5709756 1998 HCPLUS
- (62) Webb; US 5350488 1994 HCPLUS
- (63) Winebarger; US 5478436 1995 HCPLUS
- (64) Yuasa; US 4952035 1990 HCPLUS

IT 7664-39-3, Hydrofluoric acid, processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(etchant; liq. compns. for removal of oxides from inter-level dielecs.)  
RN 7664-39-3 HCPLUS  
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9, Silica, processes  
RL: REM (Removal or disposal); PROC (Process)  
(liq. compns. for removal of oxides from inter-level dielecs.)  
RN 7631-86-9 HCPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



DN 134:185144

TI Decontamination of matrices containing actinide **oxides**

IN Villarreal, Robert

PA Los Alamos National Laboratory (LANL), USA

SO U. S. Pat. Appl., 30 pp., Avail. NTIS Order No. PAT-APPL-8-975 157.  
CODEN: XAXXAV

DT Patent

LA English

CC 71-11 (Nuclear Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 975157	A0	20001211	US 1997-975157	19971120
PRAI	US 1997-975157		19971120		

AB There is provided a method for **removing** actinides and actinide **oxides**, particularly fired actinides, from soil and other contaminated matrixes, comprising: (a) contacting a contaminated material with a soln. of at least one inhibited fluoride and an acid to form a mixt.; (b) heating the mixt. of contaminated material and soln. to a temp. in the range from about 30 .degree.C to about 90 .degree.C while stirring; (c) sepg. the soln. from any undissolved matrix material in the mixt.; (d) washing the undissolved matrix material to **remove** any residual materials; and (e) drying and returning the treated matrix material to the environment.

ST soln decontamination matrixes contg plutonium actinide **oxides**

IT Soils

(decontamination from plutonium and actinide **oxides**)IT Actinide **oxides**

Actinides  
RL: PEP (Physical, engineering or chemical process); **REM (Removal or disposal)**; PROC (Process)  
(decontamination of matrixes contg.)

IT Matrix media

(decontamination of matrixes contg. actinide **oxides**)

IT Decontamination

(of matrixes contg. actinide **oxides**)

IT Heating

(of mixt. of contaminated material and soln. in process of decontamination from plutonium and actinide **oxides**)IT 11116-03-3, Plutonium **oxide**

RL: PEP (Physical, engineering or chemical process); **REM (Removal or disposal)**; PROC (Process)  
(decontamination of matrixes contg.)

IT 60-00-4, EDTA, processes 584-08-7, Potassium carbonate 7681-52-9,  
Sodium hypochlorite 7697-37-2, Nitric acid, processes 7775-14-6,  
Sodium dithionite 10035-10-6, Hydrobromic acid, processes 10043-35-3,  
Boric acid, processes 13537-32-1, Fluorophosphoric acid 16065-90-0,  
Cerium 4+, processes 16872-11-0, Tetrafluoroboric acid

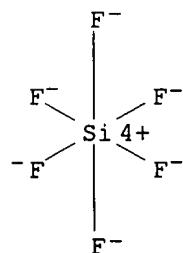
**16961-83-4**, Hexafluorosilicic acid

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(decontamination of matrixes contg. actinides **oxide** with soln. contg.)

IT **16961-83-4**, Hexafluorosilicic acid

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(decontamination of matrixes contg. actinides **oxide** with soln. contg.)

RN 16961-83-4 HCAPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



$\oplus_2 \text{H}^+$

L60 ANSWER 21 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:143581 HCAPLUS  
 DN 134:182720  
 TI Treatment agent and method for harmful waste gas containing silicon chloride  
 IN Otsuka, Kenji; Arakawa, Satoshi; Koura, Nagao  
 PA Japan Pionics, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM B01D053-68  
 ICS B01D053-34; B01D053-46; B01J020-06  
 CC 59-4 (Air Pollution and Industrial Hygiene)  
 Section cross-reference(s): 76  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001054719	A2	20010227	JP 1999-231955	19990818
PRAI	JP 1999-231955		19990818		

AB The harmful waste gas treatment agent contains CuO, MnO<sub>2</sub> with .gtoreq.130 m<sup>2</sup>/g BET sp. surface area, and an alkali metal hydroxide. Si chloride-contg. waste gas is treated with the agent. Si chloride may be SiH<sub>3</sub>Cl<sub>1</sub>, SiH<sub>2</sub>Cl<sub>2</sub>, SiHCl<sub>3</sub>. A Si chloride-contg. waste gas emitted from a semiconductor device fabrication app. can safely and efficiently be removed.  
 ST silicon chloride waste gas removal agent; manganese oxide silicon chloride removal agent; semiconductor silicon chloride waste gas agent; alkali metal hydroxide silicon chloride treatment; cupric oxide silicon chloride gas treatment agent  
 IT Waste gases  
 (silicon chloride-contg. waste gas treatment agent and treatment method)  
 IT Chlorides, processes  
 RL: PEP (Physical, engineering or chemical process); POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)  
 (silicon, removal of; silicon chloride-contg. waste gas treatment agent and treatment method)

IT Semiconductor device fabrication  
     (waste gas from; silicon chloride-contg. waste gas treatment agent and treatment method)

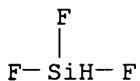
IT 4109-96-0, Dichlorosilane **13465-71-9**, Trifluorosilane  
     13465-78-6, Monochlorosilane  
     RL: PEP (Physical, engineering or chemical process); POL (Pollutant);  
     REM (Removal or disposal); OCCU (Occurrence); PROC (Process)  
     (silicon chloride-contg. waste gas treatment agent and treatment method)

IT 1313-13-9, Manganese dioxide, uses  
     RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
     (treatment agent contg.; silicon chloride-contg. waste gas treatment agent and treatment method)

IT 1310-58-3, Potassium hydroxide, uses   1310-73-2, Sodium hydroxide, uses  
     1317-38-0, Cupric oxide, uses  
     RL: TEM (Technical or engineered material use); USES (Uses)  
     (treatment agent contg.; silicon chloride-contg. waste gas treatment agent and treatment method)

IT **13465-71-9**, Trifluorosilane  
     RL: PEP (Physical, engineering or chemical process); POL (Pollutant);  
     REM (Removal or disposal); OCCU (Occurrence); PROC (Process)  
     (silicon chloride-contg. waste gas treatment agent and treatment method)

RN 13465-71-9 HCAPLUS  
 CN Silane, trifluoro- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L60 ANSWER 22 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2000:699090 HCAPLUS  
 DN 133:241323  
 TI Alkaline cleaning and anticorrosion primer treatment of magnesium-alloy die castings  
 IN Rivera, Jose B.; McMaster, Robert L.; Ike, Charles R.  
 PA Bulk Chemicals, Inc., USA  
 SO U.S., 5 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM B05D003-00  
 NCL 427307000  
 CC 56-2 (**Nonferrous Metals and Alloys**)  
 Section cross-reference(s): 42  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6126997	A	20001003	US 1999-243760	19990203
PRAI	US 1999-243760		19990203		

AB The Mg-alloy die castings are cleaned and treated for improved corrosion resistance and paint adhesion by: (a) initial cleaning in alk. bath based on aq. NaOH and/or KOH with pH of 10.2-10.8, followed by rinsing in water; (b) pickling treatment in the 2nd bath based on aq. hydroxyacetic acid at

pH of 3.5-5 with a surfactant, followed by rinsing with water; and (c) chromate-free treatment in the 3rd bath based on aq. silane, aq. polymer with carboxylic or hydroxyl functional groups, and/or Group IVB compd. (esp. H<sub>2</sub>TiF<sub>6</sub> and similar compds.). The pretreated surface is then painted or finished with a decorative coating, without intermediate rinsing stage. The treatment promotes good paint adhesion and corrosion resistance of the castings, and uses environmentally friendly components.

ST magnesium alloy die cast part cleaning bath; painting cast magnesium coating primer bath

IT Cast alloys  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(magnesium alloys, **coating** of; alk. **cleaning** and anticorrosion primer treatment of magnesium-alloy die castings)

IT Pickling  
(of Mg-alloy castings; alk. cleaning and anticorrosion primer treatment of magnesium-alloy die castings)

IT Group IVB element compounds

Silanes  
RL: MOA (Modifier or additive use); USES (Uses)  
(primer bath contg.; alk. cleaning and anticorrosion primer treatment of magnesium-alloy die castings)

IT 7439-95-4, Magnesium, processes 12634-54-7, AZ91  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(cast, **coating** of; alk. **cleaning** and anticorrosion primer treatment of magnesium-alloy die castings)

IT 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(cleaning bath contg.; alk. cleaning and anticorrosion primer treatment of magnesium-alloy die castings)

IT 79-14-1, Hydroxyacetic acid, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(cleaning in; acidic cleaning and anticorrosion primer treatment of magnesium-alloy die castings)

IT 919-30-2, .gamma.-Aminopropyltriethoxysilane 9002-89-5, Polyvinyl alcohol 9003-01-4, Polyacrylic acid 12021-95-3 14044-97-4, Silane, mercapto 17439-11-1, Fluorotitanic acid  
RL: MOA (Modifier or additive use); USES (Uses)  
(primer bath contg.; alk. cleaning and anticorrosion primer treatment of magnesium-alloy die castings)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Technical Note #20-Surface Treatments
- (2) Barlett; US 3378410 1968 HCPLUS
- (3) Beck; US 5634986 1997 HCPLUS
- (4) Bishop; US 5393353 1995 HCPLUS
- (5) Chan; US 5578347 1996
- (6) de Long; US 2302939 1942 HCPLUS
- (7) Dollman; US 4370173 1983 HCPLUS
- (8) George; US 2335826 1943 HCPLUS
- (9) Gudhe; US 4780153 1988 HCPLUS
- (10) Hawke, D; Metal Finishing 1995, P34 HCPLUS
- (11) Hawke, D; SAE Technical Paper Series, International Congress & Exposition 1992
- (12) Ishizaki; US 5645650 1997 HCPLUS
- (13) Jones; US 5859106 1999 HCPLUS
- (14) Kosters; US 5043022 1991 HCPLUS
- (15) Murray, R; SAE Technical Paper Series, International Congress and Exposition 1990

(16) Norsk Hydro Magnesium Division; Chromating of magnesium castings-Process:NH 35.

(17) Petrole; US 5700523 1997 HCPLUS

(18) Product And Manufacturing Engineering Staff; Ford Laboratory Test Methods, Salt Spray Resistance Test for Painted Panels and Parts 1990

(19) Purnell; US 5451431 1995 HCPLUS

(20) Seibel; US 5244738 1993 HCPLUS

(21) Skar, J; Characteristics and, Applications of Magnesium in Automotive Design (SP-1250)

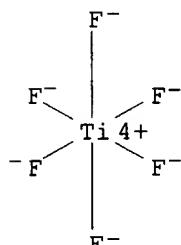
(22) Skar, J; SAE Technical Paper Series, International Congress & Exposition 1997

(23) Vincent; US 3061467 1962

IT 17439-11-1, Fluorotitanic acid  
RL: MOA (Modifier or additive use); USES (Uses)  
(primer bath contg.; alk. cleaning and anticorrosion primer treatment of magnesium-alloy die castings)

RN 17439-11-1 HCPLUS

CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 23 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1999:808614 HCPLUS

DN 132:43706

TI Fabrication of a DRAM capacitor having a rough storage node plate

IN Hsiao, Yung-Kuan; Wang, Chen-Jong

PA Taiwan Semiconductor Manufacturing Company, Taiwan

SO U.S., 11 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01L021-70

NCL 438396000

CC 76-3 (Electric Phenomena)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6004857	A	19991221	US 1998-154846	19980917
PRAI US 1998-154846		19980917		
AB A process for forming a crown-shaped storage node structure for a DRAM capacitor with a roughened top surface topol., needed for increased surface area, is described. The process features the use of a W silicide layer, used as a component of the storage node structure, with the W				

silicide layer, subjected to subsequent procedures, providing the roughened top surface topol. for the storage node structure. The W silicide layer, after deposition, is subjected to oxidn., followed by removal of the formed oxide layer from the bottom portion of the unoxidized W silicide layer, resulting in the desired roughened top surface topol. of the bottom portion of the unoxidized W silicide.

ST DRAM capacitor manuf rough storage node plate; tungsten silicide oxidn  
DRAM capacitor manuf

IT Memory devices  
(DRAM (dynamic random access); fabrication of a DRAM capacitor having a rough storage node plate)

IT Vapor deposition process  
(chem., low-pressure; in fabrication of a DRAM capacitor having a rough storage node plate)

IT Capacitors  
Semiconductor device fabrication  
(fabrication of a DRAM capacitor having a rough storage node plate)

IT Silicides  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(fabrication of a DRAM capacitor having a rough storage node plate contg.)

IT Oxides (inorganic), processes  
RL: FMU (Formation, unclassified); REM (Removal or disposal);  
FORM (Formation, nonpreparative); PROC (Process)  
(formation and removal of; in DRAM capacitor to increase surface area)

IT Oxidation  
(of tungsten silicide in DRAM capacitor to increase surface area)

IT Vapor deposition process  
(plasma; in fabrication of a DRAM capacitor having a rough storage node plate)

IT 7664-39-3, Hydrogen fluoride, processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(etching by; in fabrication of a DRAM capacitor having a rough storage node plate)

IT 7631-86-9, Silica, processes 12033-89-5, Silicon nitride (Si<sub>3</sub>N<sub>4</sub>), processes 12627-41-7, Tungsten silicide 132614-63-2, Silicon nitride oxide (Si(N,O))  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(fabrication of a DRAM capacitor having a rough storage node plate contg.)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Chhabra; US 5182232 1993 HCAPLUS  
(2) Doan; US 5223081 1993 HCAPLUS  
(3) Fusake; US 5656529 1997 HCAPLUS  
(4) Gilchrist; US 5877063 1999 HCAPLUS  
(5) Hirao; US 5693557 1997 HCAPLUS  
(6) Jeng; US 5721154 1998 HCAPLUS  
(7) Kim; US 5721153 1998  
(8) Lee; US 5741734 1998  
(9) Lu; US 5110752 1992 HCAPLUS  
(10) Sekine; US 5622888 1997 HCAPLUS  
(11) Tsai; US 5763306 1998 HCAPLUS  
(12) Wang; US 5858838 1999  
(13) Watanabe; US 5723379 1998 HCAPLUS

(14) Zahurak; US 5760434 1998 HCAPLUS  
 IT 7664-39-3, Hydrogen fluoride, processes  
 RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (etching by; in fabrication of a DRAM capacitor having a rough storage node plate)  
 RN 7664-39-3 HCAPLUS  
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9, Silica, processes  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (fabrication of a DRAM capacitor having a rough storage node plate contg.)  
 RN 7631-86-9 HCAPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

L60 ANSWER 24 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1999:669993 HCAPLUS

DN 131:280251

TI Processing a surface

IN Rose, Peter H.; Sferlazzo, Piero

PA Krytek Corp., USA

SO U.S., 24 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01L021-304

ICS H01L021-306

NCL 134007000

CC 76-3 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5967156	A	19991019	US 1994-335327	19941107
PRAI	US 1994-335327		19941107		

AB In 1 aspect, foreign material on the surface of a substrate, esp. a semiconductor wafer, is processed to form a reaction product by: providing a directed flow of a fluid, comprising a reactant, to the vicinity of the foreign material to be processed; and delivering an aerosol of at least partially frozen particles continuously or intermittently to the foreign material to help the reactant react with the foreign material to form the reaction product. In another aspect, foreign material is processed by: providing a directed flow of a fluid, comprising a reactant, to the foreign material to be processed in a limited area reaction region corresponding to a minor fraction of the total area of the substrate; agitating the foreign material in the reaction region to help the reactant react with the foreign material to form the reaction product; and providing relative motion between the substrate and the directed flow of

fluid to achieve a substantially uniform exposure of the foreign material to fluid flow and the agitation. IR or UV radiation may also be delivered to the foreign material. Specific methods for processing oxide layers, org. layers, and metal contamination are also described.

ST surface treatment semiconductor wafer; foreign material reaction substrate surface; aerosol reaction foreign material substrate surface; metal contamination removal substrate surface; IR assisted reaction foreign material substrate surface; UV assisted reaction foreign material substrate surface

IT Water vapor  
(in processing of substrate surfaces)

IT Aerosols  
IR radiation  
UV radiation  
(in reaction with foreign material on substrate surfaces)

IT Contamination (electronics)  
(removal of metal contamination from substrate surfaces)

IT Metals, processes  
RL: REM (Removal or disposal); PROC (Process)  
(removal of metal contamination from substrate surfaces)

IT Semiconductor materials  
(removal of oxide and org. layers and metal contamination from wafers of)

IT Organic compounds, processes  
**Oxides (inorganic)**, processes  
RL: REM (Removal or disposal); PROC (Process)  
(removal of; from substrate surfaces)

IT 67-56-1, Methanol, processes 67-63-0, Isopropyl alcohol, processes  
124-38-9, Carbon dioxide, processes 7440-37-1, Argon, processes  
**7664-39-3**, Hydrogen fluoride, processes 7664-41-7, Ammonia,  
processes 7727-37-9, Nitrogen, processes 7732-18-5, Water, processes  
7782-50-5, Chlorine, processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(in processing of substrate surfaces)

IT **7631-86-9**, Silica, processes  
RL: REM (Removal or disposal); PROC (Process)  
(removal of; from substrate surfaces)

RE.CNT 97 THERE ARE 97 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Aigo; US 4500080 1985
- (2) Anon; GB 2146926 1985 HCPLUS
- (3) Anon; FR 2596672 1987
- (4) Anon; EP 0332356 A2 1989 HCPLUS
- (5) Anon; EP 0461476 A2 1991 HCPLUS
- (6) Anon; WO 9103075 1991
- (7) Anon; EP 0585936 A2 1994 HCPLUS
- (8) Anon; ARCO Bulletin Compressed Air Magazine 1986
- (9) Anon; Chem Show Preview 1993
- (10) Anon; NASA Tech Briefs 1990
- (11) Anon; Semiconductor International 1990
- (12) Bard; US 5119637 1992
- (13) Bartlett; US 4365383 1982
- (14) Baumgart; US 4793103 1988
- (15) Blackwood; US 4749440 1988 HCPLUS
- (16) Bowling; US 3270464 1966
- (17) Brandt; US 4663890 1987
- (18) Cherry; US 4832753 1989

- (19) Cherry; US 4936922 1990
- (20) Courts; US 2699403 1955
- (21) Duncan; US 3545996 1970 HCPLUS
- (22) Endo; US 5081068 1992 HCPLUS
- (23) Fong; US 4038786 1977
- (24) Fong; US 4389820 1983
- (25) Foster; Third Annual International Workshop On Solvent Substitution,  
Phoenix, Arizona, Dec 8-11, 1992
- (26) Freeouf; US 4597825 1986 HCPLUS
- (27) Gibot; US 4707951 1987
- (28) Goffnett; US 5108512 1992
- (29) Grant; US 5228206 1993
- (30) Grant; US 5234540 1993 HCPLUS
- (31) Hagen; The Journal of Chemical Physics 1972, V56(5) HCPLUS
- (32) Hall; US 4326553 1982
- (33) Hardt; US 3708993 1973
- (34) Hayashi; US 4631250 1986
- (35) Hayashi; US 4747421 1988
- (36) Hayashi; US 4756047 1988
- (37) Henning; US 3214867 1965
- (38) Hill, E; Carbon Dioxide Snow Examination and Experimentation 1994, P36
- (39) Hoenig; 9th ICCS Proceedings 1988
- (40) Ichinoseki; US 4655847 1987
- (41) Imai; US 4704873 1987
- (42) Inoue; US 4458703 1984
- (43) Izumi; US 5022961 1991 HCPLUS
- (44) Kanno; US 5074083 1991
- (45) Kiyokawa; US 5289263 1994
- (46) Kono; US 3984943 1976
- (47) Lawson; US 4401131 1983
- (48) Layden; US 4962891 1990
- (49) Layden; J Vac Sci Technol A 1990, V8(5) HCPLUS
- (50) Leliaert; US 3934374 1976
- (51) Levi; US 5009240 1991
- (52) Liu; US 4817652 1989
- (53) Lloyd; US 5018667 1991
- (54) McCune; US 4871651 1989 HCPLUS
- (55) McDermott; US 5062898 1991
- (56) McDermott; US 5209028 1993
- (57) McDermott; US 5231865 1993
- (58) McDermott; Microcontamination 1991, P33
- (59) McDermott; Proceedings-Institute of Environmental Sciences, 1991
- (60) McNeilly; US 4778559 1988 HCPLUS
- (61) McNeilly; US 4938815 1990 HCPLUS
- (62) McNeilly; US 5044314 1991 HCPLUS
- (63) Miller; US 1899626 1933 HCPLUS
- (64) Moore; US 4727687 1988
- (65) Moore; US 4744181 1988
- (66) Moses; US 4084357 1978
- (67) Nomura; US 3704822 1972
- (68) Ockovic; US 5026155 1991
- (69) Ohmori; US 5147466 1992
- (70) Ohmori; J Electrochem Soc 1989, V137(8)
- (71) Olevitch; US 5044129 1991
- (72) Peterson; SPIE Proceedings Series 1990, V1329 HCPLUS
- (73) Peterson; SPIE Proceedings Series 1992, V1754
- (74) Phelps; Effects of Fluid Dynamics on Cleaning Efficacy of Supercritical  
Fluids, Prepared for U S Department of Energy under Contract De-AC06-76RLO

1830 1993  
(75) Rice; US 3676963 1972  
(76) Rice; US 3702519 1972  
(77) Rufin; US 5001873 1991  
(78) Sherman; J Vac Sci Technol B 1990, V8(3) HCPLUS  
(79) Sherman; J Vac Sci Technol B 1991, V9(4) HCPLUS  
(80) Stemple; US 4585517 1986 HCPLUS  
(81) Sugimoto; US 4870923 1989  
(82) Swain; US 5125979 1992  
(83) Syverson; US 4857142 1989 HCPLUS  
(84) Syverson; US 4900395 1990 HCPLUS  
(85) Tada; US 4932168 1990  
(86) Tada; US 4974375 1990  
(87) Tada; US 5025597 1991  
(88) Tada; US 5035750 1991  
(89) Tanaka; US 5279705 1994 HCPLUS  
(90) Tano; US 4753051 1988  
(91) Thompson; US 4300581 1981  
(92) Titus; US 4439243 1984  
(93) Tom; J Aerosol Sci 1991, V22(5), P555 HCPLUS  
(94) Walk; US 3074822 1963  
(95) Westergaard; US 4703590 1987  
(96) Whitlock; US 4806171 1989  
(97) Zimmerman; US 4705438 1987  
IT 7664-39-3, Hydrogen fluoride, processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(in processing of substrate surfaces)  
RN 7664-39-3 HCPLUS  
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 7631-86-9, Silica, processes  
RL: REM (Removal or disposal); PROC (Process)  
(removal of; from substrate surfaces)  
RN 7631-86-9 HCPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L60 ANSWER 25 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 1999:126748 HCPLUS  
DN 130:156923  
TI Acidic bath with fluorometallate anions for forming a protective coating  
on zinc or galvanized surfaces  
IN Hall, James R.; Prescott, Thomas J.  
PA Henkel Corporation, USA  
SO U.S., 8 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
IC ICM C23C022-48

NCL 148247000

CC 56-6 (**Nonferrous Metals and Alloys**)  
Section cross-reference(s): 42

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5873952	A	19990223	US 1997-896238	19970717
PRAI	US 1997-896238		19970717		

AB The Zn or Zn-alloy surface is coated in the aq. bath contg. transition metal cations, fluorometallate anions, and optionally acids for the pH of 2.5-5. The coating bath can be stabilized by monitoring the pH value and the concns. of transition metal cations and fluorometallate anions, and replenishing the low-concn. compns. to continue the treatment. The anion:cation ratio is preferably (0.5-10):1, with the cations at 0.0004-0.050M and the anions at 0.001-0.20M. The aq. bath for coating of galvanized steel as the coiled strip contains fluorotitanic acid for the anions at 1.90 g/L, NiCO<sub>3</sub> for Ni cations at 0.54 g/L, and NH<sub>4</sub>HCO<sub>3</sub> for pH of 3.8, and is heated at 54-60.degree. and pumped for 8.0-s treatment of the coiled steel strip.

ST zinc surface coating aq nickel fluorotitanate bath; galvanized steel coating aq fluorotitanate bath

IT Group VIII element compounds

RL: MOA (Modifier or additive use); USES (Uses)  
(aq. bath contg.; acidic bath with fluorometallate anions for coating of zinc or galvanized surfaces)

IT Galvanized steel

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(coating of; acidic bath with fluorometallate anions for coating of zinc or galvanized surfaces)

IT Coating process

(for zinc; acidic bath with fluorometallate anions for dip coating of zinc surface)

IT 3333-67-3, Nickel carbonate 7440-50-8D, Copper, salts, uses 12021-95-3  
16872-11-0, Fluoroboric acid **16961-83-4**, Fluorosilicic acid

**17439-11-1**, Fluorotitanic acid

RL: MOA (Modifier or additive use); USES (Uses)  
(aq. bath contg.; acidic bath with fluorometallate anions for coating of zinc or galvanized surfaces)

IT 7440-66-6, Zinc, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(coating of; acidic bath with fluorometallate anions for coating of zinc or galvanized surfaces)

IT 12597-69-2, Steel, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(galvanized **strip**, **coating** of; acidic bath with fluorometallate anions for coating of zinc or galvanized surfaces)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

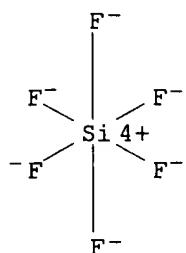
(1) Anon; WO 8505131 1985 HCAPLUS  
(2) Deck; US 5344504 1994 HCAPLUS

IT **16961-83-4**, Fluorosilicic acid **17439-11-1**, Fluorotitanic acid

RL: MOA (Modifier or additive use); USES (Uses)  
(aq. bath contg.; acidic bath with fluorometallate anions for coating of zinc or galvanized surfaces)

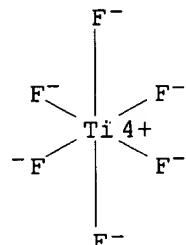
RN 16961-83-4 HCAPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



2  $H^+$

RN 17439-11-1 HCPLUS  
CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2  $H^+$

L60 ANSWER 26 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 1999:89619 HCPLUS  
DN 130:146782  
TI Characterization of HF cleaning of ion-implanted Si surfaces  
AU Kondoh, E.; Baklanov, M. R.; Maex, K.  
CS IMEC, Louvain, B-3001, Belg.  
SO Diffusion and Defect Data--Solid State Data, Pt. B: Solid State Phenomena (1999), 65-66(Ultra Clean Processing of Silicon Surfaces), 271-274  
CODEN: DDBPE8; ISSN: 1012-0394  
PB Scitec Publications  
DT Journal  
LA English  
CC 76-2 (Electric Phenomena)  
Section cross-reference(s): 66, 73  
AB Issues of HF-last cleaning of implanted Si were studied by contact angle measurement and ellipsometry. Cleaning of BF<sub>2</sub>-implanted Si is not straightforward because of slow removal of surface oxide. This is not significant for As-implanted Si. O chemisorption starts at the Si surface immediately after HF etching. Oxide grows faster on As-implanted Si than on non- or BF<sub>2</sub>-implanted Si.  
ST silicon fluoroborane implantation hydrofluoric acid cleaning; arsenic implantation silicon hydrofluoric acid

cleaning; oxygen chemisorption silicon implantation etching  
IT Chemisorption  
    **Cleaning**  
    Contact angle  
    Etching  
    Ion implantation  
        (**oxide removal** by and O chemisorption after HF  
          etching of Si surfaces ion-implanted by BF<sub>2</sub> and As studied by contact  
          angle measurement and ellipsometry)  
IT Oxidation  
    (surface; **oxide removal** by and O chemisorption  
          after HF etching of Si surfaces ion-implanted by BF<sub>2</sub> and As studied by  
          contact angle measurement and ellipsometry)  
IT 7440-38-2, Arsenic, processes 7782-44-7, Oxygen, processes 13842-55-2,  
Boron difluoride  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
    (**oxide removal** by and O chemisorption after HF  
          etching of Si surfaces ion-implanted by BF<sub>2</sub> and As studied by contact  
          angle measurement and ellipsometry)  
IT 7440-21-3, Silicon, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
    (**oxide removal** by and O chemisorption after HF  
          etching of Si surfaces ion-implanted by BF<sub>2</sub> and As studied by contact  
          angle measurement and ellipsometry)  
IT 7631-86-9, Silica, processes  
RL: PEP (Physical, engineering or chemical process); REM (Removal or  
disposal); PROC (Process)  
    (**oxide removal** by and O chemisorption after HF  
          etching of Si surfaces ion-implanted by BF<sub>2</sub> and As studied by contact  
          angle measurement and ellipsometry)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Baklanov, M; Surf Sci 1979, V88, P427ff
- (2) Bootsma, G; Surf Sci 1969, V14, P52ff
- (3) Dorn, R; Surf Sci 1974, V42, P583ff
- (4) Morita, M; J Appl Phys 1990, V68, P1272ff
- (5) Ponjee, J; J Vac Sci Technol 1990, VB8, P463ff
- (6) Sato, Y; Jap J Appl Phy 1994, V33, P6508ff

L60 ANSWER 27 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1998:778444 HCPLUS

DN 130:131003

TI Fiber Optic Corrosion Sensor fabricated by electrochemical method

AU Li, X. M.; Chen, W. M.; Huang, Z. Q.; Huang, S. L.; Bennett, K. D.

CS Center for Intelligent Structures, Chongqing University, 400044, Peop.  
Rep. China

SO Proceedings of SPIE-The International Society for Optical Engineering  
(1998), 3330(Sensory Phenomena and Measurement Instrumentation for Smart  
Structures and Materials), 126-133  
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 72-8 (Electrochemistry)

Section cross-reference(s): 55

AB This paper reports the research of a Fiber Optic Corrosion Sensor (FOCS)  
fabricated by electroplating an Fe-C alloy film onto an optical fiber core

within the sensing region. Fabrication of the sensing film involves removal of the cladding, metalization of the optical fiber core, and electroplating of the Fe-C alloy layer. The initial results show that the sensor output power increases by about 35% when the film is corroded with the sensor of the film passivated, and that the time taken to rise to max. output power is prolonged by almost 3 times, compared with that for non-passivated film. These results demonstrate the feasibility of using optical fiber corrosion sensors for monitoring corrosion of steel in civil structures.

- ST fiber optic corrosion sensor fabrication electrochem method; electroplating iron carbon alloy steel corrosion sensor
- IT Corrosion
  - Fiber optics
  - Sensors
    - (fiber optic corrosion sensor fabricated by electrochem. method)
- IT X-ray diffraction
  - (of Fe-C alloy electrodeposited from bath contg. org. acid on silver electrode)
- IT Electrodeposition
  - (of Fe-C alloy layer on fiber optic in fabrication of fiber optic corrosion sensor)
- IT Thickness
  - (of electroplating Fe-C layer, dependence on electroplating time)
- IT Passivation
  - (of optical fiber in soln. of HNO<sub>3</sub> in fabrication of fiber optic corrosion sensor)
- IT Etching
  - (of silica layer on fiber optic in fabrication of fiber optic corrosion sensor)
- IT Coating process
  - (of silver on fiber optic in fabrication of fiber optic corrosion sensor)
- IT 50-81-7, L-Ascorbic acid, uses 77-92-9, Citric acid, uses
  - RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
    - (electrodeposition of Fe-C alloy on fiber optic from soln. contg.)
- IT 7720-78-7
  - RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
    - (electrodeposition of Fe-C alloy on fiber optic from soln. contg.)
- IT 12716-37-9
  - RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); FORM (Formation, nonpreparative); PROC (Process)
    - (electrodeposition on fiber optic from soln. contg. org. acid in fabrication of fiber optic corrosion sensor)
- IT 1336-21-6, Ammonium hydroxide
  - RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
    - (metalization of fiber optic after removing of silica cladding by silver in soln. contg.)
- IT 7761-88-8, Silver nitrate, properties
  - RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
    - (metalization of fiber optic after removing of silica cladding by tin in soln. of)
- IT 7697-37-2, Nitric acid, uses
  - RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
    - (passivation of fiber optic after removing of silica cladding in soln. of)
- IT 7631-86-9, Silica, properties 7664-39-3, Hydrofluoric

acid, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
 RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (removing of silica cladding from optical fiber by HF in  
 fabrication of fiber optic corrosion sensor)

IT 7647-01-0, Hydrochloric acid, uses

RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
 (sensation of fiber optic after removing of silica cladding  
 by tin in soln. contg.)

IT 7772-99-8, Tin dichloride, properties

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
 (sensation of fiber optic after removing of silica cladding  
 by tin in soln. of)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bennett, K; SPIE 1995, V2446, P71
- (2) Fontana, M; Corrosion Engineering 1986, P1
- (3) Fuhr, P; SPIE 1995, V2446, P2
- (4) Fuhr, P; SPIE 1996, V2719, P229 HCPLUS
- (5) Oxtoby, D; CHEMISTRY: SCIENCE OF CHANGE 1990, P564
- (6) Rutherford, P; SPIE 1996, V2718, P158 HCPLUS

IT 7631-86-9, Silica, properties 7664-39-3, Hydrofluoric acid, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
 RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (removing of silica cladding from optical fiber by HF in  
 fabrication of fiber optic corrosion sensor)

RN 7631-86-9 HCPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

RN 7664-39-3 HCPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L60 ANSWER 28 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1998:410768 HCPLUS

DN 129:75171

TI Dry-etching gas for oxide film, its etching method, and method of cleaning silicon

IN Saito, Hiroshi

PA Central Glass Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L021-3065

ICS C23C016-00; C23F004-00; H01L021-304

CC 76-3 (Electric Phenomena)

FAN.CNT 1

PATENT NO.

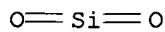
KIND DATE

APPLICATION NO. DATE

PI	JP 10172957	A2	19980626	JP 1996-328847	19961209
	JP 2950785	B2	19990920		
PRAI	JP 1996-328847		19961209		
AB	An etching gas, a mixt. of (1) a HF gas and (2) a gas which is excited and becomes plasma (a plasma gas), is claimed. The plasma gas may be Ar, He, Kr, Xe, or H. Cleaning of Si is carried out by (a) stopping supply of the HF gas after the dry-etching, and (b) leading only the plasma gas onto the Si substrate. Oxide film is completely removed without damaging Si substrate.				
ST	plasma gas dry etching oxide film; silicon cleaning dry etching plasma gas; hydrogen fluoride dry etching gas				
IT	<b>Oxides (inorganic)</b> , processes RL: REM (Removal or disposal); PROC (Process) (dry-etching gas contg. HF and plasma gas for oxide film)				
IT	Cleaning (of silicon; dry-etching gas contg. HF and plasma gas for oxide film)				
IT	Etching (plasma; dry-etching gas contg. HF and plasma gas for oxide film)				
IT	7664-39-3, Hydrogen fluoride, uses RL: NUU (Other use, unclassified); USES (Uses) (dry-etching gas contg. HF and plasma gas for oxide film)				
IT	7631-86-9, Silicon oxide, processes 59763-75-6, Tantalum oxide 82867-87-6, Silicon fluoride oxide (SiFO) RL: REM (Removal or disposal); PROC (Process) (dry-etching gas contg. HF and plasma gas for oxide film)				
IT	7440-21-3, Silicon, processes RL: PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process) (dry-etching gas contg. HF and plasma gas for oxide film and cleaning of silicon)				
IT	1333-74-0, Hydrogen, uses 7439-90-9, Krypton, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses 7440-63-3, Xenon, uses RL: NUU (Other use, unclassified); USES (Uses) (plasma gas; dry-etching gas contg. HF and plasma gas for oxide film)				
IT	7664-39-3, Hydrogen fluoride, uses RL: NUU (Other use, unclassified); USES (Uses) (dry-etching gas contg. HF and plasma gas for oxide film)				
RN	7664-39-3 HCPLUS				
CN	Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)				

## HF

IT	7631-86-9, Silicon oxide, processes RL: REM (Removal or disposal); PROC (Process) (dry-etching gas contg. HF and plasma gas for oxide film)				
RN	7631-86-9 HCPLUS				
CN	Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)				



DN 128:310787  
 TI Recovery of lead from acid battery manufacture waste.  
 IN Teodorescu, Romanita; Radulescu, Carmen-Elena; Ioanide, Dumitru-Iordan;  
     Serpescu, Viorel; Simedrea, Florin; Cernea, Petra  
 PA Institutul de Metale Neferoase si Rare, Bucuresti, Rom.  
 SO Rom., 3 pp.  
     CODEN: RUXXA3  
 DT Patent  
 LA Romanian  
 IC ICM C22B003-06  
     ICS C25C001-18  
 CC 54-2 (Extractive Metallurgy)  
     Section cross-reference(s): 52  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RO 105712	B1	19921130	RO 1990-144727	19900405
PRAI	RO 1990-144727		19900405		

AB Solid wastes contg. lead **oxides**, from acid battery manuf., are dissolved in fluorosilicic or fluoroboric acids, the soln. is treated with sulfuric acid and hydrogen peroxide. The resulting lead sulfide is leached with sodium bicarbonate and the resulting carbonate is dissolved in fluorosilicic or fluoroboric acids (130-150 g/L). The soln. is subjected to electrolysis with sodium lignosulfonate (0.4-4.0 g/L), bone glue (0.04-0.4 g/L), and phosphorus (1.5-2.5 g/L) additives. The overall recovery of lead is 90-97%. The advantages are related to environment pollution prevention by using a hydrometallurgical method instead of pyrometallurgical process as well as material savings resulting from the use of waste hexafluorosilicic acid from fertilizer manuf.

ST lead recycling acid battery manuf  
 IT Glues  
     Glues  
         (bone glues; lead recycling from acid battery manuf. waste by dissoln. in fluorine-contg. acids, sulfatization, carbonate formation, redissoln. and electrolysis with additives)

IT Bone  
     Bone  
         (glues; lead recycling from acid battery manuf. waste by dissoln. in fluorine-contg. acids, sulfatization, carbonate formation, redissoln. and electrolysis with additives)

IT Electrolysis  
     Secondary batteries  
     Solid wastes  
         (lead recycling from acid battery manuf. waste by dissoln. in fluorine-contg. acids, sulfatization, carbonate formation, redissoln. and electrolysis with additives)

IT Recycling  
     (nonferrous **metal**; lead recycling from acid battery manuf. waste by dissoln. in fluorine-contg. acids, sulfatization, carbonate formation, redissoln. and electrolysis with additives)

IT 7723-14-0, Phosphorus, uses 8061-51-6, Sodium lignosulfonate  
     RL: MOA (Modifier or additive use); USES (Uses)  
         (lead recycling from acid battery manuf. waste by dissoln. in fluorine-contg. acids, sulfatization, carbonate formation, redissoln. and electrolysis with additives)

IT 144-55-8, Sodium bicarbonate, processes 1335-25-7, Lead oxide  
     7664-93-9, Sulfuric acid, processes 7722-84-1, Hydrogen peroxide,  
     processes 16872-11-0, Fluoroboric acid **16961-83-4**,

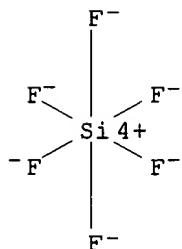
Hexafluorosilicic acid  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (lead recycling from acid battery manuf. waste by dissoln. in  
 fluorine-contg. acids, sulfatization, carbonate formation, redissoln.  
 and electrolysis with additives)

IT 598-63-0P, Lead carbonate  
 RL: PNU (Preparation, unclassified); PREP (Preparation)  
 (lead recycling from acid battery manuf. waste by dissoln. in  
 fluorine-contg. acids, sulfatization, carbonate formation, redissoln.  
 and electrolysis with additives)

IT 7439-92-1P, Lead, preparation  
 RL: PUR (Purification or recovery); PREP (Preparation)  
 (lead recycling from acid battery manuf. waste by dissoln. in  
 fluorine-contg. acids, sulfatization, carbonate formation, redissoln.  
 and electrolysis with additives)

IT 16961-83-4, Hexafluorosilicic acid  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (lead recycling from acid battery manuf. waste by dissoln. in  
 fluorine-contg. acids, sulfatization, carbonate formation, redissoln.  
 and electrolysis with additives)

RN 16961-83-4 HCPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



② H<sup>+</sup>

L60 ANSWER 30 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1997:231009 HCPLUS

DN 126:219533

TI Semiconductor device fabrication

IN Green, Martin Laurence; Ma, Yi

PA At&t Corp., USA

SO Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01L021-306

CC 76-3 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 758796 R: DE, FR, GB US 5814562	A1 A	19970219 19980929	EP 1996-305795 US 1995-558997	19960807 19951116

JP 09106971	A2	19970422	JP 1996-214467	19960814
PRAI US 1995-2275P	P	19950814		
US 1995-558997	A	19951116		

AB The invention includes a process for cleaning a Si substrate before gate SiO<sub>2</sub> is formed on it. The gate SiO<sub>2</sub> is used to form transistor gates. The process provides a Si/SiO<sub>2</sub> interface and the bulk SiO<sub>2</sub> with advantageous elec. properties. The Si substrate is 1st subjected to a stream of HF vapor. The HF vapor stream is a mixt. of anhyd. HF, MeOH, and N. Following this, the substrate is subjected to gaseous Cl that has been irradiated with broad-band UV radiation. After the substrate has been cleaned, a layer of SiO<sub>2</sub> is grown on it using conventional techniques such as rapid thermal oxidn. It is advantageous if the cleaned Si surface is kept under high vacuum or in an inert gas environment before the oxide growth is commenced. It is advantageous if the substrate is maintained in an essentially O-free atm. from the time the HF vapor step is started until the growth of SiO<sub>2</sub> is commenced. After the oxide is grown, device structures are formed on the Si substrate using conventional processing techniques.

ST semiconductor device manuf; silicon substrate cleaning

IT MOS devices

(cleaning of silicon substrates in fabrication of)

IT Transistors

(cleaning of silicon substrates in fabrication of semiconductor devices contg.)

IT UV radiation

(cleaning of silicon substrates in fabrication of semiconductor devices using chlorine treated with)

IT Cleaning

(of silicon substrates in fabrication of semiconductor devices)

IT Oxides (inorganic), processes

RL: REM (Removal or disposal); PROC (Process)

(removal of native oxides from silicon substrates in fabrication of semiconductor devices)

IT Semiconductor devices

(silicon substrate cleaning in fabrication of)

IT 7782-50-5, Chlorine, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(UV-irradiated; in cleaning of silicon substrates in fabrication of semiconductor devices)

IT 7631-86-9, Silica, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(cleaning of silicon substrates in fabrication of semiconductor devices contg.)

IT 7440-21-3, Silicon, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(cleaning of substrates of)

IT 67-56-1, Methanol, processes 7664-39-3, Hydrogen fluoride,

processes 7727-37-9, Nitrogen, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)

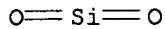
(in cleaning of silicon substrates in fabrication of semiconductor devices)

IT 7631-86-9, Silica, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(cleaning of silicon substrates in fabrication of semiconductor devices contg.)

RN 7631-86-9 HCPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, processes  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (in cleaning of silicon substrates in fabrication of semiconductor  
 devices)  
 RN 7664-39-3 HCPLUS  
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L60 ANSWER 31 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1996:660798 HCPLUS  
 DN 125:282565  
 TI Rough surface etching solutions for pretreatment in platinum plating of  
 titanium or its alloys and etching method  
 IN Kimura, Takayuki  
 PA Tanaka Precious Metal Ind, Japan  
 SO Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C23F001-26  
 ICS C25D003-50; C25D005-38  
 CC 56-6 (Nonferrous Metals and Alloys)  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08218185	A2	19960827	JP 1995-46256	19950210
PRAI JP 1995-46256		19950210		

AB The etching solns. contain HI and/or I<sub>2</sub> as I sources and HF, NaF, KF,  
 NH<sub>4</sub>F, NH<sub>4</sub>HF<sub>2</sub>, H<sub>2</sub>SiF<sub>6</sub>, HBF<sub>4</sub>, and/or alkali metal salts  
 or ammonium salts of H<sub>2</sub>SiF<sub>6</sub> or HBF<sub>4</sub> as F sources. The solns.  
 may contain KI or NaI. The process comprises removing  
 oxide layers from Ti or its alloy surfaces, etching with  
 the solns., and optionally activation with aq. NH<sub>4</sub>HF solns. Resulting  
 products have dense platings with high adhesion.  
 ST etching soln titanium alloy iodine fluoride; platinum plating titanium  
 alloy etching  
 IT Coating process  
 Etching  
 (etching solns. contg. iodine and fluoride in platinum plating of  
 titanium or its alloys and etching method)  
 IT 7440-06-4, Platinum, uses 7440-32-6, Titanium, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (etching solns. contg. iodine and fluoride in platinum plating of  
 titanium or its alloys and etching method)  
 IT 1341-49-7, Ammonium hydrogen fluoride 7553-56-2, Iodine, uses  
 7664-39-3, Hydrogen fluoride, uses 7681-11-0, Potassium iodide, uses  
 7681-49-4, Sodium fluoride, uses 7681-82-5, Sodium iodide, uses

7789-23-3, Potassium fluoride 10034-85-2, Hydrogen iodide 12125-01-8,  
 Ammonium fluoride 16872-11-0, Borofluoric acid 16961-83-4,  
 Hexafluorosilicic acid

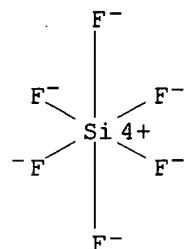
RL: TEM (Technical or engineered material use); USES (Uses)  
 (etching solns. contg. iodine and fluoride in platinum plating of  
 titanium or its alloys and etching method)

IT 16961-83-4, Hexafluorosilicic acid

RL: TEM (Technical or engineered material use); USES (Uses)  
 (etching solns. contg. iodine and fluoride in platinum plating of  
 titanium or its alloys and etching method)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



2 H<sup>+</sup>

L60 ANSWER 32 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1996:554569 HCPLUS

DN 125:174999

TI Etching solution for pretreatment of platinum plating on titanium  
**substrate** and etching method

IN Kimura, Takayuki

PA Tanaka Precious Metal Ind, Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C23F001-26

ICS C25D003-50; C25D005-38

CC 56-6 (**Nonferrous Metals** and Alloys)  
 Section cross-reference(s): 72

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08176852	A2	19960709	JP 1994-336124	19941224
PRAI	JP 1994-336124		19941224		
AB	The etching soln. contains 4-12N HNO <sub>3</sub> , 2-24N H <sub>2</sub> SO <sub>4</sub> , or 4-12N HCl with 0.05-0.5% fluorides. The fluoride may be HF, NaF, KF, NH <sub>4</sub> F, NH <sub>4</sub> HF <sub>2</sub> , etc. The method involves <b>removing</b> surface <b>oxide</b> on Ti (alloy) <b>substrate</b> and etched with the soln. to form uniform surface for Pt plating.				
ST	platinum plating pretreatment etching titanium; fluoride etchant titanium plating pretreatment				
IT	Electrodeposition and Electroplating				

## Etching

(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT Titanium alloy, base

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT 7697-37-2, Nitric acid, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(etchant; etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT 1341-49-7, Ammonium hydrogen fluoride 7664-39-3, Hydrogen fluoride, uses  
7681-49-4, Sodium fluoride, uses 7789-23-3, Potassium fluoride

12125-01-8, Ammonium fluoride 16872-11-0, Tetrafluoroboric acid

**16961-83-4**, Hexafluorosilicic acid

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT 7440-06-4, Platinum, miscellaneous

RL: MSC (Miscellaneous)  
(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT 7440-32-6, Titanium, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT 7647-01-0, Hydrochloric acid, uses 7664-93-9, Sulfuric acid, uses

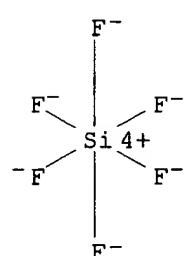
RL: TEM (Technical or engineered material use); USES (Uses)  
(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

IT **16961-83-4**, Hexafluorosilicic acid

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(etching soln. contg. fluoride for pretreatment of Pt plating on Ti substrate)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



2 H<sup>+</sup>

DN 125:209625  
TI New approach to preparing smooth Si(100) surfaces: Characterization by spectroellipsometry and validation of Si/SiO<sub>2</sub> interfaces properties in metal-oxide-semiconductor devices  
AU Schmidt, D.; Niimi, H.; Hinds, B. J.; Aspnes, D. E.; Lucovsky, G.  
CS Department Physics, North Carolina State University, Raleigh, NC, 27695-8202, USA  
SO Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (1996), 14(4), 2812-2816  
CODEN: JVTBD9; ISSN: 0734-211X  
PB American Institute of Physics  
DT Journal  
LA English  
CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 66  
AB Wet chem. removal of thermally grown SiO<sub>2</sub> layers on Si(100) substrates was studied as a function of the pH of the etching solns. at -0.32 to +1.6 by adding controlled amts. of H<sub>2</sub>SO<sub>4</sub> to a 1:30 HF:H<sub>2</sub>O mixt. Characterization of the stripped Si(100) surfaces by spectroellipsometry showed that the smoothest surfaces were obtained at a 1:0.50:30 HF (49%):H<sub>2</sub>SO<sub>4</sub> (98%):H<sub>2</sub>O etch with a pH .apprx.0.5. Elec. characterization of metal-oxide-semiconductor (MOS) capacitors fabricated on these surfaces with oxide layers prepnd. by remote plasma enhanced CVD showed (i) the lowest d. of interface traps, Dit, (ii) the lowest tunneling currents, J<sub>T</sub>, and (iii) the highest breakdown fields, EBD, occurring at the same pH value that produced the smoothest surfaces. In contrast, MOS capacitors fabricated with high-temp. thermally grown oxides were not significantly affected.  
ST etching silica layer silicon sulfuric acid; hydrogen fluoride sulfuric acid etching silica; capacitor silicon silica etching surface smoothness  
IT Dielectric strength  
Electric capacitors  
Etching  
Kinetics of etching  
(effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)  
IT Trapping and Traps  
(interfacial, effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)  
IT Vapor deposition processes  
(plasma, of silica for capacitors; effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)  
IT Surface structure  
(roughness, effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)  
IT Electric current  
(tunnel, effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)  
IT 7647-01-0, Hydrogen chloride, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(effect of hydrogen fluoride etching of silica with)  
IT 7440-21-3, Silicon, properties

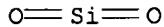
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)

IT 7631-86-9, Silica, properties  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
(effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)

IT 7664-39-3, Hydrogen fluoride, uses 7664-93-9, Sulfuric acid, uses  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)

IT 7631-86-9, Silica, properties  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
(effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)

RN 7631-86-9 HCPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, uses  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(effect of pH of HF-H<sub>2</sub>SO<sub>4</sub> etching soln. on surface smoothness of silicon and properties of MOS capacitors based on these substrates)

RN 7664-39-3 HCPLUS  
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L60 ANSWER 34 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 1995:773048 HCPLUS  
DN 123:289000  
TI Washing process of plastic bumpers for coating process  
IN Ikeda, Satoru; Yamane, Yoshiki; Watanabe, Kentaro; Nakamura, Itaru  
PA Nippon Paint Co Ltd, Japan; Nissan Motor  
SO Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C11D010-02

ICS C08J007-02; C11D017-00  
 ICI C11D010-02, C11D007-08, C11D007-28, C11D001-66, C11D007-24, C11D007-06  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 42

## FAN.CNT 1

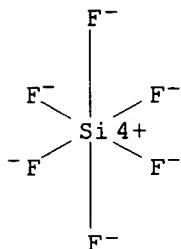
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07126697	A2	19950516	JP 1993-273799	19931101
PRAI	JP 1993-273799		19931101		
AB	Title process includes (1) pre-washing by hot water at temp. higher than the m.p., i.e., .gtoreq.90.degree., of paraffin wax exterior mold-releasing agents as contents in the bumpers, (2) washing by acidic aq. detergents with pH 2-4 contg. 0.1-100 g/L mineral acids, 0.01-10 g/L fluorinated compds., 0.1-10 g/L nonionic surfactants (S) with HLB 13-17, polyethylene-polypropylene-based foaming inhibitors at wt. ratio 0.1-2 vs. S, and Na and/or ammonium pH controllers, (3) washing with water, (4) blowing air, and (5) drying at room temp. to 80.degree.. Thus, a polyurethane bumper contg. Zn stearate and Rimurikei B 421 (paraffin wax) was successively washed with water, with a detergent contg. 3 g/L H <sub>2</sub> SO <sub>4</sub> , 0.5 g/L HF, 1 g/L poly(oxyethylene) nonylphenyl ether, 0.5 g/L ethylene oxide-propylene oxide block copolymer higher alc. ether, 1.3 g/L 30% aq. ammonia, and NaOH, and with water, blown with air, and dried at 75.degree. for 7 min. The bumper was precoated with a primer, coated with a polyurethane, and baked to give a test piece showing improved adhesion.				
ST	plastic bumper washing process; <b>coating</b> plastic bumper surface <b>cleaning</b> ; mold releaser removal plastic bumper; hot water washing plastic bumper; mineral acid detergent plastic bumper; nonionic surfactant detergent plastic bumper; polyoxyethylene polyoxypolypropylene deriv antifoaming agent; acidic detergent plastic bumper; paraffin exterior mold releaser bumper; zinc stearate inner mold releaser				
IT	Detergents (aq. detergents contg. mineral acids and surfactants and antifoaming agents for washing plastic bumpers before coating process)				
IT	Urethane polymers, uses RL: DEV (Device component use); USES (Uses) (bumpers; washing of plastic bumpers contg. paraffin mold releaser before coating process)				
IT	Paraffin waxes and Hydrocarbon waxes, processes RL: <b>REM (Removal or disposal)</b> ; PROC (Process) (mold-releasing agents, Rimurikei B 421; washing of plastic bumpers with hot water contg. paraffin mold releaser before coating process)				
IT	Coating process Parting materials (washing of plastic bumpers with hot water contg. paraffin mold releaser before coating process)				
IT	Automobiles (bumpers, washing of plastic bumpers contg. paraffin mold releaser before coating process)				
IT	7664-39-3, Hydrofluoric acid, uses 7664-93-9, Sulfuric acid, uses <b>16961-83-4</b> , Hydrofluorosilicic acid RL: TEM (Technical or engineered material use); USES (Uses) (aq. detergents contg. mineral acids and surfactants and antifoaming agents for washing plastic bumpers before coating process)				
IT	9002-92-0, Poly(oxyethylene) lauryl ether RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (surfactants; aq. detergents contg. mineral acids and surfactants and antifoaming agents for washing plastic bumpers before coating process)				

IT 9016-45-9, Poly(oxyethylene) nonylphenyl ether 106392-12-5D, Ethylene oxide-propylene oxide block copolymer, higher alc. ethers  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (surfactants; aq. detergents contg. mineral acids and surfactants and antifoaming agents for washing plastic bumpers before coating process)

IT 7732-18-5, Water, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (washing of plastic bumpers with hot water contg. paraffin mold releaser before coating process)

IT 16961-83-4, Hydrofluorosilicic acid  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (aq. detergents contg. mineral acids and surfactants and antifoaming agents for washing plastic bumpers before coating process)

RN 16961-83-4 HCAPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



② H<sup>+</sup>

L60 ANSWER 35 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1995:227364 HCAPLUS  
 DN 123:206196  
 TI Treating **metals** with fluoroacid-**metal** oxide aqueous composition for corrosion resistance  
 IN Dolan, Shawn E.; Reghi, Gary A.  
 PA Henkel Corp., USA  
 SO U.S., 12 pp. Cont.-in-part of U.S. 5,281,282.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM C23C022-48  
 NCL 148247000  
 CC 56-6 (Nonferrous **Metals** and Alloys)  
 Section cross-reference(s): 55  
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5356490	A	19941018	US 1993-131645	19931005
	US 5281282	A	19940125	US 1992-862012	19920401
	ZA 9302181	A	19931028	ZA 1993-2181	19930326
	AT 154833	E	19970715	AT 1993-907635	19930326
	ES 2106330	T3	19971101	ES 1993-907635	19930326
	RU 2125118	C1	19990120	RU 1994-42462	19930326
	IN 180012	A	19980110	IN 1993-MA220	19930329

CN 1078271	A	19931110	CN 1993-105207	19930401
CN 1034683	B	19970423		
ZA 9407354	A	19950510	ZA 1994-7354	19940921
CA 2172632	AA	19950413	CA 1994-2172632	19940928
WO 950934	A1	19950413	WO 1994-US10587	19940928
	W:	AU, BR, CA, CN, JP, KR, NO, NZ, RU		
	RW:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE		
AU 9479567	A1	19950501	AU 1994-79567	19940928
AU 676950	B2	19970327		
EP 728225	A1	19960828	EP 1994-930451	19940928
EP 728225	B1	19991229		
	R:	DE, FR, GB, IT, NL, SE		
CN 1132531	A	19961002	CN 1994-193659	19940928
CN 1059936	B	20001227		
BR 9407751	A	19970212	BR 1994-7751	19940928
US 5534082	A	19960709	US 1995-429431	19950421
US 5769967	A	19980623	US 1996-674558	19960702
CN 1151449	A	19970611	CN 1996-109425	19960809
CN 1067447	B	20010620		
PRAI US 1992-862012	A2	19920401		
US 1993-131645	A	19931005		
US 1994-213138	B1	19940315		
WO 1994-US10587	W	19940928		
US 1995-429431	A1	19950421		
AB	A precursor contg. a) .gtoreq.1 of H <sub>2</sub> TiF <sub>6</sub> , H <sub>2</sub> ZrF <sub>6</sub> , H <sub>2</sub> HfF <sub>6</sub> , H <sub>2</sub> SiF <sub>6</sub> , H <sub>2</sub> GeF <sub>6</sub> , H <sub>2</sub> SnF <sub>6</sub> , and HBF <sub>4</sub> ; and b) dissolved and/or dispersed carbonates, oxides, and hydroxides of .gtoreq.1 of Ti, Zr, Al, Hf, Si, Ge, Sn, and B is maintained at sufficient temp. and time to obtain a clear soln. The compn. is then mixed with H <sub>2</sub> O-sol. or dispersible polymer and/or a H <sub>2</sub> O-sol. oxide, hydroxide, and carbonate of .gtoreq.1 of Ti, Zr, Hf, B, Al, Si, Ge, and Sn to form a soln that is stable for .gtoreq.100 h at 20-25.degree.. The compn. can be dried on the surface, or treated, rinsed, and subsequently coated with polymers and/or chromates. Increased corrosion resistance of metals treated with the compn., esp. after subsequent painting is obtained.			
ST	fluoroacid metal oxide compn corrosion resistance			
IT	Coating process			
	Corrosion inhibitors			
	(treating metals with stable fluoroacid-metal oxide aq. compn. for corrosion resistance)			
IT	Acrylic polymers, uses			
	Epoxy resins, uses			
	RL: TEM (Technical or engineered material use); USES (Uses)			
	(treating metals with stable fluoroacid-metal oxide aq. compn. for corrosion resistance)			
IT	7631-86-9, Fumed silica, uses			
	RL: TEM (Technical or engineered material use); USES (Uses)			
	(colloidal; treating metals with stable fluoroacid- metal oxide aq. compn. for corrosion resistance)			
IT	7429-90-5D, Aluminum, compds. 7440-21-3D, Silicon, compds. 7440-31-5D, Tin, compds. 7440-32-6D, Titanium, compds. 7440-42-8D, Boron, compds. 7440-56-4D, Germanium, compds. 7440-58-6D, Hafnium, compds. 7440-67-7D, Zirconium, compds.			
	RL: TEM (Technical or engineered material use); USES (Uses)			
	(hydroxides, oxides, and carbonates; treating metals with stable fluoroacid-metal oxide aq. compn. for corrosion resistance)			
IT	1333-82-0, Chromium oxide (CrO <sub>3</sub> ) 9005-25-8, Corn starch, uses			

12021-47-5 12021-95-3 14475-63-9, Zirconium hydroxide 16872-11-0,  
 Tetrafluoroboric acid 16950-43-9 16961-83-4,  
 Fluosilicic acid 17439-11-1 36577-48-7D, Zirconium carbonate,  
 basic 44488-49-5 147335-59-9, Parcolene 95AT 162006-87-3  
 162730-95-2, Accumer 1510 162730-99-6, Parcolene 88B 162731-54-6, RIX  
 95928

RL: TEM (Technical or engineered material use); USES (Uses)  
 (treating **metals** with stable fluoroacid-**metal** oxide  
 aq. compn. for corrosion resistance)

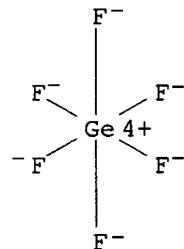
IT 16950-43-9 16961-83-4, Fluosilicic acid

17439-11-1

RL: TEM (Technical or engineered material use); USES (Uses)  
 (treating **metals** with stable fluoroacid-**metal** oxide  
 aq. compn. for corrosion resistance)

RN 16950-43-9 HCPLUS

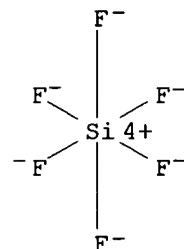
CN Germanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2 H<sup>+</sup>

RN 16961-83-4 HCPLUS

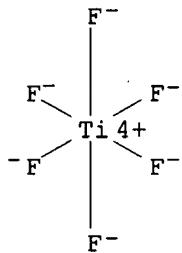
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



2 H<sup>+</sup>

RN 17439-11-1 HCPLUS

CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



②  $H^+$

L60 ANSWER 36 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1994:489383 HCAPLUS

DN 121:89383

TI Formation of hydrophilic and corrosion-resistant coating agent for aluminum foils and heat exchangers

IN Chen, Xujun; Chen, Zhenjia; Li, Yui

PA Beijing Chemical College, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.  
CODEN: CNXXEV

DT Patent

LA Chinese

IC ICM C23C022-66

ICS F28F013-18

CC 56-6 (Nonferrous Metals and Alloys)

PATENT NO. KIND DATE APPLICATION NO. DATE

PI	CN 1079998	A	19931229	CN 1993-107761	19930702
	CN 1026902	B	19941207		

PRAI CN 1993-107761 19930702

AB The title coating agent contains amine salts 0.06-50, halogen compds. 0.2-75, azole and its derivs. 0.005-1, polymeric phosphates 0.4-55, alk. compds. 10-200, and defoaming agents and solubilizers 0.01-5 g/L. The coating agent is prep'd. by: dissolving the alk. compds. and the polymeric phosphates into water, heating to 50-90.degree., adding azole, its derivs., and the solubilizers, stirring, adding the amine salts and the defoaming agents, stirring again, and removing the insol. impurities. The coating is formed by: cleaning Al foils and Al heat

exchangers, degreasing, immersing into the coating agent at 20-90 .degree.C, washing with water, and drying at 140-280.degree. for 1-15 min.

ST coating agent hydrophilic corrosion resistance; aluminum foil coating agent; heat exchanger aluminum coating agent; amine salt coating agent; halogen compd coating agent; azole polymeric phosphate coating agent; alk compd coating agent

IT Heat-exchange apparatus

(aluminum, hydrophobic and corrosion-resistant coating agent for)

IT Amines, uses

RL: USES (Uses)

(hydrophobic and corrosion-resistant coating agent contg., for aluminum foils and heat exchangers)

IT Coating materials

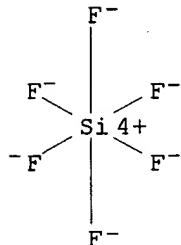
(anticorrosive, hydrophobic and, for aluminum foils)

IT 7429-90-5, Aluminum, miscellaneous  
 RL: MSC (Miscellaneous)  
 (foils and heat exchangers, hydrophobic and corrosion-resistant coating agent for)

IT 127-08-2, Potassium acetate 497-19-8, Na<sub>2</sub>CO<sub>3</sub>, uses 1310-58-3, KOH, uses 1310-73-2, NaOH, uses 6834-92-0, Na<sub>2</sub>SiO<sub>3</sub> 7447-40-7, KCl, uses 7447-41-8, LiCl, uses 7601-54-9, Sodium phosphate (Na<sub>3</sub>PO<sub>4</sub>) 7647-14-5, NaCl, uses 7647-15-6, NaBr, uses 7681-11-0, KI, uses 7681-49-4, NaF, uses 7681-82-5, NaI, uses 7758-02-3, KBr, uses 7789-23-3, KF 10006-28-7, Potassium silicate (K<sub>2</sub>SiO<sub>3</sub>) 12125-01-8, NH<sub>4</sub>F 12125-02-9, NH<sub>4</sub>Cl, uses 16961-83-4, H<sub>2</sub>SIF<sub>6</sub>  
 RL: USES (Uses)  
 (hydrophobic and corrosion-resistant coating agent contg., for aluminum foils and heat exchangers)

IT 16961-83-4, H<sub>2</sub>SIF<sub>6</sub>  
 RL: USES (Uses)  
 (hydrophobic and corrosion-resistant coating agent contg., for aluminum foils and heat exchangers)

RN 16961-83-4 HCAPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 37 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1994:60396 HCAPLUS  
 DN 120:60396  
 TI Method of treating nonferrous metal surfaces  
 IN Gray, Ralph C.; Pawlik, Michael J.; Kahle, Charles F., II; Prugnal, Paul J.  
 PA PPG Industries, Inc., USA  
 SO PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C23C022-07  
 ICS C23C022-34; C23C022-48  
 CC 56-6 (Nonferrous Metals and Alloys)  
 FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 9320258	A1	19931014	WO 1993-US2326	19930312
W: AU, BR, CA, FI, JP, KR, NO				

RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE  
 US 5306526 A 19940426 US 1992-862143 19920402  
 AU 9338080 A1 19931108 AU 1993-38080 19930312  
 AU 670076 B2 19960704  
 EP 633949 A1 19950118 EP 1993-907494 19930312  
 EP 633949 B1 19960918

R: AT, BE, DE, DK, ES, FR, GB, IE, IT, NL, SE  
 JP 07501585 T2 19950216 JP 1993-517468 19930312  
 JP 2843439 B2 19990106  
 AT 143063 E 19961015 AT 1993-907494 19930312  
 ES 2094533 T3 19970116 ES 1993-907494 19930312  
 BR 9306246 A 19980630 BR 1993-6246 19930312

PRAI US 1992-862143 A 19920402  
 WO 1993-US2326 A 19930312

AB A nonferrous **metal** (e.g., Al) **substrate** is treated with an acid activating agent (e.g., HF) to **dissolve** **metal oxide film** which may form on the **substrate**, and then treated with an organophosphate or organophosphonate. The treatment provides for improved adhesion and flexibility as well as resistance to humidity, salt spray corrosion, and detergents of subsequently applied coatings.

ST nonferrous **metal** surface treatment; acid activating agent surface treatment; hydrogen fluoride acid activating agent; organophosphate organophosphonate **metal** surface treatment

IT Amines, compounds  
 RL: FORM (Formation, nonpreparative); PREP (Preparation)  
 (coco alkyl, salts, formation of, for surface treatment of nonferrous **metal substrates**, for adhesion and corrosion resistance)

IT Metals, miscellaneous  
 RL: MSC (Miscellaneous)  
 (nonferrous, surface treatment of, acid activating agent and organophosphate or organophosphonate in, for adhesion and corrosion resistance)

IT 1310-73-2, Sodium hydroxide, uses 7681-49-4, Sodium fluoride, uses 16961-83-4, Fluorosilicic acid 17439-11-1  
 RL: USES (Uses)  
 (acid activating agent contg., in surface treatment of nonferrous **metal substrates**, for adhesion and corrosion resistance)

IT 152060-36-1P 152076-05-6P 152246-94-1P 152246-95-2P  
 RL: FORM (Formation, nonpreparative); PREP (Preparation)  
 (formation of, for surface treatment of nonferrous **metal substrates**, for adhesion and corrosion resistance)

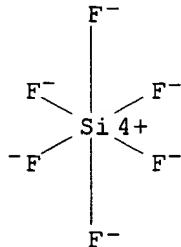
IT 11149-84-1  
 RL: USES (Uses)  
 (**substrate**, surface treatment of, acid activating agent and organophosphate or organophosphonate in, for adhesion and corrosion resistance)

IT 7429-90-5, Aluminum, properties 7440-66-6, Zinc, properties  
 RL: PRP (Properties)  
 (**substrate**, surface treatment of, acid activating agent and organophosphate or organophosphonate in, for adhesion and corrosion resistance)

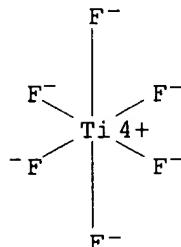
IT 16961-83-4, Fluorosilicic acid 17439-11-1  
 RL: USES (Uses)  
 (acid activating agent contg., in surface treatment of nonferrous **metal substrates**, for adhesion and corrosion

resistance)

RN 16961-83-4 HCPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

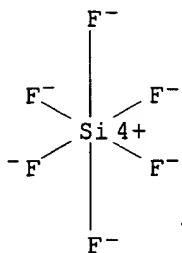
RN 17439-11-1 HCPLUS  
 CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)

● 2 H<sup>+</sup>

L60 ANSWER 38 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1993:632950 HCPLUS  
 DN 119:232950  
 TI Removal of undesirable constituents from flue gases with calcium hydroxide  
 IN Farwick, Hermann; Weiler, Helmut; Riepert, Albert; Rummelhohl, Volker  
 PA Steag AG, Germany  
 SO Eur. Pat. Appl., 9 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA German  
 IC ICM B01D053-34  
 CC 59-4 (Air Pollution and Industrial Hygiene)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 510747 R: PT DE 4113793	A1	19921028	EP 1992-201026	19920402
		A1	19921105	DE 1991-4113793	19910426

DE 4113793 C2 19940804  
 WO 9219362 A1 19921112 WO 1992-EP732 19920402  
 W: JP, US  
 RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE  
 PRAI DE 1991-4113793 19910426  
 AB Hot flue gases are sprayed with alk. earth oxides or hydroxides (e.g., Ca(OH)2) and cooled to bind the pollutants in particulate form for dedusting. The pollutants are condensed as the gas is cooled below the dew point and neutralized to give the particulate salts or compds. Hydrogen halides (HF) and SO3 are neutralized. SO2 is converted to SO3 upstream of the treatment site. Si compds., esp. H2SiF6, are removed by hydrolysis to SiO2 and CaF2 in the treatment process.  
 ST pollution removal gas calcium hydroxide; flue gas cleaning dedusting  
 IT Flue gases  
     (halides and sulfur **oxides removal** from hot, with calcium hydroxide injection followed by dedusting)  
 IT Alkaline earth halides  
     Sulfates, miscellaneous  
     RL: **REM (Removal or disposal)**; PROC (Process)  
         (**removal** of, from flue gases, with calcium hydroxide injection followed by dedusting)  
 IT 7446-09-5, Sulfur dioxide, miscellaneous  
     RL: **REM (Removal or disposal)**; PROC (Process)  
         (**removal** of, as sulfur trioxide, from flue gases, with calcium hydroxide injection followed by dedusting)  
 IT 7440-21-3D, Silicon, compds. **16961-83-4**  
     RL: **REM (Removal or disposal)**; PROC (Process)  
         (**removal** of, by hydrolysis, from flue gases, with calcium hydroxide injection followed by dedusting)  
 IT 11104-93-1, Nitrogen **oxide**, miscellaneous  
     RL: **REM (Removal or disposal)**; PROC (Process)  
         (**removal** of, catalytic, from flue gases, after treatment with calcium hydroxide and dedusting)  
 IT 7446-11-9, Sulfur trioxide, miscellaneous 7631-86-9, Silica, miscellaneous 7664-39-3, Hydrogen fluoride, miscellaneous  
     RL: **REM (Removal or disposal)**; PROC (Process)  
         (**removal** of, from flue gases, with calcium hydroxide injection followed by dedusting)  
 IT **16961-83-4**  
     RL: **REM (Removal or disposal)**; PROC (Process)  
         (**removal** of, by hydrolysis, from flue gases, with calcium hydroxide injection followed by dedusting)  
 RN 16961-83-4 HCAPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 39 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1993:438926 HCPLUS

DN 119:38926

TI Polishing of silicon single crystal wafer mirror face

IN Abe, Yasuhiko

PA Kyoto Handotai Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C30B029-06

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 72

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 04367593	A2	19921218	JP 1991-169000	19910614
PRAI JP 1991-169000		19910614		

AB The method involves (1) immersing a Si wafer and an anode contg. Pt or a Pt-plating metal wiring in a mixt. soln. of dild. H<sub>2</sub>SO<sub>3</sub> and hydrofluoric acid, (2) electrolyzing at .gtoreq.0.5 A/cm<sup>2</sup> to generate O<sub>3</sub>, (3) ozone-decompg. to oxidize Si by high active O, and (4) treating SiO<sub>2</sub> with hydrofluoric acid to remove H<sub>2</sub>SiF<sub>6</sub>.

ST silicon single crystal wafer polishing

IT Semiconductor devices  
(chem. polishing of silicon wafer mirror face in manuf. of,  
electrolysis solns. for)

IT Polishing  
(chem., of silicon single crystal wafers, in sulfulic acid and hydrofluoric acid)

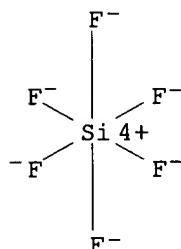
IT 7440-06-4, Platinum, uses  
RL: USES (Uses)  
(anodes, for ozone generation, in silicon mirror-polishing)

IT 7440-21-3, Silicon, uses  
RL: USES (Uses)  
(mirror-polishing of, by hydrofluoric acid and dild. sulfuric acid)

IT 10028-15-6P, Ozone, preparation  
RL: PREP (Preparation)  
(prepn. of, by electrolysis, for silicon wafer oxidn.)

IT 16961-83-4  
RL: USES (Uses)

(removing of, in silicon wafer polishing)  
IT 7631-86-9, Silicon oxide (SiO<sub>2</sub>), uses  
RL: USES (Uses)  
(removing of, with hydrofluoric acid, in silicon wafer  
polishing, as fluorosilicic acid)  
IT 57-13-6, Urea, uses 64-19-7, Acetic acid, uses 7553-56-2, Iodine, uses  
RL: USES (Uses)  
(silicon single crystal mirror-polishing soln. contg.)  
IT 7664-93-9, Sulfuric acid, uses  
RL: USES (Uses)  
(silicon single crystal wafer mirror-polishing with hydrochloric acid  
and)  
IT 7664-39-3, Hydrofluoric acid, uses  
RL: USES (Uses)  
(silicon single crystal wafer mirror-polishing with sulfuric acid and)  
IT 16961-83-4  
RL: USES (Uses)  
(removing of, in silicon wafer polishing)  
RN 16961-83-4 HCAPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 40 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
AN 1993:237348 HCAPLUS  
DN 118:237348  
TI Study on a new coal cleaning technology  
AU Wang, Tonghua; Li, Hanxu; Zheng, Mingdong; Li, Hua; Cui, Zhidong  
CS Dalian Univ. Technol., Dalian, 116012, Peop. Rep. China  
SO Meitan Zhanhua (1992), 15(3), 69-74  
CODEN: MEZHE6; ISSN: 1004-4248  
DT Journal  
LA Chinese  
CC 51-17 (Fossil Fuels, Derivatives, and Related Products)  
AB A new coal cleaning technol. with F-contg. acids was studied. The  
deashing effects and mechanism of the F-contg. acids, HF recovery from  
F-contg. waste acid, and defluorination of the cleaned coal were  
investigated. An optimum coal cleaning process shows that F-contg. acids  
were the efficient agents for cleaning coal; HF acid effectively removed  
SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, and Fe<sub>2</sub>O<sub>3</sub> components from minerals, whereas H<sub>2</sub>SiF<sub>6</sub>  
acid removed Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, and MgO components from minerals. The  
coal cleaning process can ensure an ash content in the cleaned coal of  
<0.5% (dry basis). The most of HF in the waste acid was recovered by

chem. adsorption on NaF and reused for cleaning. The F content in the cleaned coal was decreased to that of original matrix by a 2-stage defluorination treatment.

ST coal deashing demineralization defluorination; hydrofluoric acid coal deashing; fluorine acid coal deashing

IT Coal treatment  
(deashing, with fluorine-contg. acids)

IT 7664-39-3, Hydrofluoric acid, uses **16961-83-4**

RL: USES (Uses)  
(coal deashing by)

IT 1305-78-8, Calcium **oxide**, miscellaneous 1309-37-1, Ferric **oxide**, miscellaneous 1309-48-4, Magnesium **oxide**, miscellaneous 1344-28-1, Aluminum **oxide** (Al<sub>2</sub>O<sub>3</sub>), miscellaneous 7631-86-9, Silicon dioxide, miscellaneous

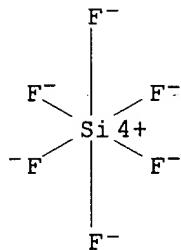
RL: REM (Removal or disposal); PROC (Process)  
(removal of, from coal, by deashing with fluorine-contg. acids)

IT **16961-83-4**

RL: USES (Uses)  
(coal deashing by)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

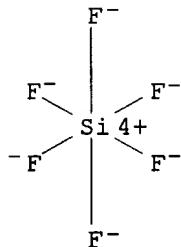
2 H<sup>+</sup>

L60 ANSWER 41 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 1992:655381 HCPLUS  
DN 117:255381  
TI Zinc recovery from spent zinc-oxide absorbent of hydrogen sulfide  
IN Chumaevskii, V. A.; Evgen'eva, M. I.; Kapralov, A. V.; Andreev, V. I.  
PA Buisk Chemical Plant, USSR  
SO U.S.S.R.  
From: Izobreteniya 1992, (6), 113.  
CODEN: URXXAF

DT Patent  
LA Russian  
IC ICM C22B007-00  
ICS C22B019-00  
CC 54-2 (Extractive Metallurgy)  
Section cross-reference(s): 59

FAN.CNT 1  
PATENT NO. KIND DATE APPLICATION NO. DATE  
----- ----- ----- ----- -----

PI SU 1712434 A1 19920215 SU 1989-4761529 19891120  
 PRAI SU 1989-4761529 19891120  
 AB Recovery of Zn by acid leaching is increased by using a mixt. of H<sub>3</sub>PO<sub>4</sub>, HNO<sub>3</sub>, and H<sub>2</sub>SiF<sub>6</sub> in aq. solns. at the resp. content ratio of 1:(0.85-1.87):(0.0168-0.0178):(2.099-3.071) based on the anions and H<sub>2</sub>O. The spent adsorbent is added at 0.80-0.95 of stoichiometric cation sum calcd. for the formation of monosubstituted acid salts. The adsorbent is preferably added at 152-178.6 kg ZnO/h-m<sup>3</sup> into the acidic soln. at 20-30.degree., and leached for 1-3 h.  
 ST hydrogen sulfide adsorbent acid leaching; zinc leaching spent oxide adsorbent  
 IT Absorbents (zinc oxide, leaching of hydrogen sulfide-satd., aq. acid mixt. for)  
 IT 1314-13-2, Zinc oxide (ZnO), uses  
 RL: USES (Uses) (adsorbent, for hydrogen sulfide, acidic leaching of spent)  
 IT 16961-83-4 7664-38-2, Phosphoric acid, uses 7697-37-2, Nitric acid, uses  
 RL: PROC (Process) (leaching mixt. with, for spent adsorbent based on zinc oxide, zinc recovery by)  
 IT 7440-66-6P, Zinc, preparation  
 RL: PUR (Purification or recovery); PREP (Preparation) (recovery of, from oxide adsorbent, acidic leaching mixt. for)  
 IT 7783-06-4, Hydrogen sulfide, miscellaneous  
 RL: REM (Removal or disposal); PROC (Process) (removal of, spent zinc oxide adsorbent in, acidic leaching of)  
 IT 16961-83-4  
 RL: PROC (Process) (leaching mixt. with, for spent adsorbent based on zinc oxide, zinc recovery by)  
 RN 16961-83-4 HCPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



L60 ANSWER 42 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1992:260521 HCPLUS  
 DN 116:260521  
 TI Removal of solder from molybdenum masks by etching  
 IN Hata, Ichiro; Samejima, Teiichiro  
 PA Neos Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C23G001-10  
 ICS C23F001-02  
 CC 56-6 (Nonferrous **Metals** and Alloys)  
 Section cross-reference(s): 76

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03257185	A2	19911115	JP 1990-56260	19900307
PRAI	JP 1990-56260		19900307		

AB The solder residue on Mo masks is removed by etching with an acid during contact of the mask with a chem. more active metal (esp. Cu, Fe, Al, Zn, Sn, or Pb). Thus, the Mo masking board (area 450 cm<sup>2</sup>) precoated with a solder 0.15 mm thick was cleaned by immersion into aq. soln. (contg. 35% H<sub>2</sub>SiF<sub>6</sub> 45 and 35% H<sub>2</sub>O<sub>2</sub> 3%) for 30 min at 60.degree. while in contact with Cu sheet (area 10 cm<sup>2</sup>, thickness 1 mm), resulting in no wt. loss of Mo, vs. 1620 mg wt. loss when similarly cleaned without the Cu contact.

ST molybdenum mask solder etching acid; copper contact molybdenum mask cleaning; fluorosilicic acid cleaning molybdenum mask

IT Etching  
 (acidic, of solder on molybdenum mask, copper contact for preventing corrosion in)

IT Solders  
 (removal of, from molybdenum masks, acid etching for, with copper contact to prevent corrosion)

IT 7439-98-7, Molybdenum, miscellaneous  
 RL: MSC (Miscellaneous) 4

(cleaning of, solder etching in, with copper contact to prevent corrosion)

IT 7429-90-5, Aluminum, miscellaneous 7439-92-1, Lead, miscellaneous  
 7440-31-5, Tin, miscellaneous 7440-50-8, Copper, miscellaneous  
 7440-66-6, Zinc, miscellaneous

RL: MSC (Miscellaneous)  
 (contact with, on molybdenum mask etched in acidic bath to remove solder, corrosion loss prevention by)

IT 7722-84-1, Hydrogen **peroxide**, miscellaneous 16961-83-4  
 , Fluosilicic acid

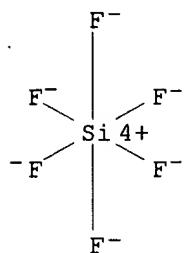
RL: MSC (Miscellaneous)  
 (etching bath contg., solder removal from molybdenum mask by, with copper contact to prevent corrosion)

IT 16961-83-4, Fluosilicic acid  
 RL: MSC (Miscellaneous)

(etching bath contg., solder removal from molybdenum mask by, with copper contact to prevent corrosion)

RN 16961-83-4 HCAPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME).



L60 ANSWER 43 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1992:158062 HCPLUS  
 DN 116:158062  
 TI Preparation of catalysts for nitrogen **oxides removal**  
 from boiler flue gas  
 IN Fukuda, Yuji; Kato, Yasuyoshi  
 PA Babcock-Hitachi K. K., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM B01J033-00  
 ICS B01D053-36; B01J037-00  
 CC 59-4 (Air Pollution and Industrial Hygiene)  
 Section cross-reference(s): 67  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03262542	A2	19911122	JP 1990-62009	19900313
PRAI JP 1990-62009		19900313		

AB NOx is removed from coal-fired boiler flue gases by redn. with NH3 in the presence of a fixed bed of redn. catalysts loaded with 0.1-10 wt.% SiO2. The catalyst may contain TiO2, Mo oxides, and V oxides. The catalyst bed is preferably passed through a mixt. of steam and silicate ester-and/or H2SiF4-contg. gas at 100-200.degree. to form a silica protective layer on the honeycomb support surface. The catalyst service life is significantly extended.

ST boiler flue gas redn catalyst; silica coating redn catalyst protection; nitrogen **oxide removal** flue gas

IT Reduction catalysts  
 (titania-molybdenum oxide, on silica-coated honeycomb supports, for boiler flue gas treatment)

IT Flue gases  
 (boiler, nitrogen **oxides removal** from, by redn.  
 with ammonia, catalysts for, silica-contg. layer-coated)

IT 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 13463-67-7,  
 Titania, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts contg., silica-contg. protective layer on, for nitrogen **oxides removal** from flue gases)

IT 11099-06-2, Silicic acid ethyl ester 12002-26-5, Silicic acid methyl

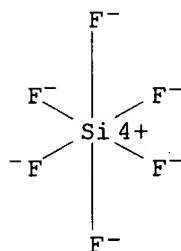
ester 16961-83-4  
 RL: OCCU (Occurrence)  
 (mixed gas contg. steam and, for forming silica protective layer on  
 redn. catalysts for nitrogen oxide removal from  
 boiler flue gas)

IT 7631-86-9, Silica, miscellaneous  
 RL: MSC (Miscellaneous)  
 (protective layer contg., on redn. catalysts for nitrogen oxide  
 removal from boiler flue gas)

IT 11104-93-1, Nitrogen oxide, miscellaneous  
 RL: REM (Removal or disposal); PROC (Process)  
 (removal of, from boiler flue gases, by redn. with ammonia,  
 catalysts for, silica-contg. protecting layer on)

IT 16961-83-4  
 RL: OCCU (Occurrence)  
 (mixed gas contg. steam and, for forming silica protective layer on  
 redn. catalysts for nitrogen oxide removal from  
 boiler flue gas)

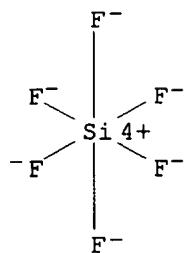
RN 16961-83-4 HCPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 44 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1991:67437 HCPLUS  
 DN 114:67437  
 TI Cleaning and treatment of ceramic parts having thin tungsten or molybdenum  
 surface films for electroless coating with gold  
 IN Brandenburger, Juergen; Thimm, Alfred  
 PA Hoechst CeramTec A.-G., Germany  
 SO Ger. Offen., 3 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM C04B041-88  
 ICS C23C018-42; C23C018-18; C04B035-10; H01L021-48; H01L023-498;  
 H01L023-15  
 CC 56-6 (Nonferrous Metals and Alloys)  
 Section cross-reference(s): 57, 76  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3917867	A1	19901206	DE 1989-3917867	19890601

FR 2647780	A1	19901207	FR 1990-6570	19900528
FR 2647780	B1	19920904		
JP 03036282	A2	19910215	JP 1990-143274	19900531
PRAI DE 1989-3917867		19890601		
AB	The parts are cleaned subsequently in an alk. soln., an acid soln., in aq. HF- <b>H2SiF6</b> , an alk. bath of pH .gt;req.10, and in dild. H2SO4 of pH .lt;req.3. The treated parts are coated with Au in an aq. soln. contg. KAu(CN)2 and used in electronics.			
ST	<b>cleaning tungsten coating ceramics; molybdenum coating ceramics cleaning; gold coating tungsten ceramics cleaning; fluorosilicic acid cleaning coating ceramics; hydrofluoric acid cleaning coating ceramics; electronics gold tungsten coating ceramics</b>			
IT	Ceramic materials and wares (aluminum <b>oxide</b> , <b>cleaning</b> of molybdenum- or tungsten-coated, for electroless coating with gold)			
IT	Coating process (electroless, of gold, on molybdenum- or tungsten-coated ceramic parts for electronics, cleaning and pretreatment in)			
IT	1344-28-1 RL: USES (Uses) (ceramic materials and wares, aluminum <b>oxide</b> , <b>cleaning</b> of molybdenum- or tungsten-coated, for electroless coating with gold)			
IT	7664-39-3, Hydrofluoric acid, uses and miscellaneous RL: USES (Uses) (cleaning and treatment with fluorosilicic acid and, of molybdenum- or tungsten-coated ceramics, for electroless coating with gold)			
IT	<b>16961-83-4</b> , Fluorosilicic acid RL: USES (Uses) (cleaning and treatment with hydrofluoric acid and, of molybdenum- or tungsten-coated ceramics, for electroless coating with gold)			
IT	7664-93-9, Sulfuric acid, uses and miscellaneous RL: USES (Uses) (cleaning and treatment with, of molybdenum- or tungsten-coated ceramics, for electroless coating with gold)			
IT	7439-98-7, Molybdenum, uses and miscellaneous 7440-33-7, Tungsten, uses and miscellaneous RL: USES (Uses) (cleaning of ceramics coated with, for electroless coating with gold)			
IT	1344-28-1, Alumina, uses and miscellaneous RL: USES (Uses) (cleaning of molybdenum- or tungsten-coated, for electroless coating with gold)			
IT	7440-57-5, Gold, uses and miscellaneous RL: USES (Uses) (coating with, on molybdenum- or tungsten-coated ceramics, electroless, cleaning and pretreatment in)			
IT	<b>16961-83-4</b> , Fluorosilicic acid RL: USES (Uses) (cleaning and treatment with hydrofluoric acid and, of molybdenum- or tungsten-coated ceramics, for electroless coating with gold)			
RN	16961-83-4 HCAPLUS			
CN	Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)			



② H<sup>+</sup>

L60 ANSWER 45 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1989:430260 HCPLUS  
 DN 111:30260  
 TI Formation of silicon dioxide film  
 IN Hayashi, Shigeo; Hishinuma, Akimitsu; Kitaoka, Masaki; Aida, Takuji;  
 Kawahara, Hideo; Deki, Shigeto  
 PA Nippon Sheet Glass Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C23C018-00  
 ICS C03C017-02; C04B041-87  
 CC 72-7 (Electrochemistry)  
 Section cross-reference(s): 55, 56  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 01017872	A2	19890120	JP 1987-175507	19870714
	JP 06060415	B4	19940810		
PRAI	JP 1987-175507		19870714		

AB A method for forming a SiO<sub>2</sub> film on a substrate is described, which involves contacting the substrate to a SiO<sub>2</sub> supersatn. soln. prep'd. by dissolving a metal in a SiO<sub>2</sub> satn. soln. of H<sub>2</sub>SiF<sub>6</sub>. The amt. of the metal dissolved in the soln. is controlled by dipping an electrode of the metal in the soln. and applying a potential between the electrode and soln. The rate of film formation is controlled. Specifically, the metal comprises .gt;req.1 of Mg, Al, Fe, Co, Ni, Cu, and Sn, or their alloys.

ST silica film deposition metal dissoln

IT Transition metals, reactions  
 RL: PEP (Physical, engineering or chemical process); PROC (Process) (electrochem. dissoln. of, in formation of silica films)

IT Coating process  
 (electrochem. metal dissoln. in, with silica)

IT Glass, oxide  
 RL: USES (Uses)  
 (formation of silica films on, electrochem. metal dissoln. in)

IT 16961-83-4  
 RL: PRP (Properties)  
 (electrochem. dissoln. of metals in silica-contg., in formation of

films)

IT 7429-90-5, Aluminum, reactions 7439-89-6, Iron, reactions 7439-95-4,  
 Magnesium, reactions 7440-02-0, Nickel, reactions 7440-48-4, Cobalt,  
 reactions 7440-50-8, Copper, reactions 7440-66-6, Zinc, reactions  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (electrochem. dissoln. of, in formation of silica films)

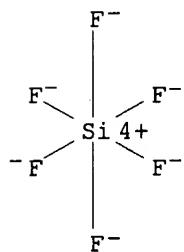
IT 7631-86-9P, Silica, uses and miscellaneous  
 RL: PREP (Preparation); USES (Uses)  
 (films, formation of, electrochem. dissoln. of  
 metals in)

IT 7631-86-9  
 RL: PRP (Properties)  
 (glass, formation of silica **films** on, electrochem. metal  
 dissoln. in)

IT 16961-83-4  
 RL: PRP (Properties)  
 (electrochem. dissoln. of metals in silica-contg., in formation of  
 films)

RN 16961-83-4 HCAPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 46 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1989:119580 HCAPLUS

DN 110:119580

TI Primer **coating** of aluminum **strip** for ink adhesion in  
can top manufacture

IN Kikuchi, Kazuo

PA Furukawa Aluminum Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C23C022-68

CC 56-6 (**Nonferrous Metals and Alloys**)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63149387	A2	19880622	JP 1986-296287	19861212
PRAI	JP 1986-296287		19861212		
AB	The Al or Al-alloy strip is coated with a soln. contg an alc. and/or water as well as organosilane monomer having >2 functional groups/mol. for a				

good top coating. Optionally, a fluorinated Ti and/or Zr compd. is present in the soln. Thus, H38 Al strip was coated with aq. primer contg. methacryloxypropyltrimethoxysilane 10, EtOH 20, H<sub>2</sub>ZrF<sub>6</sub> 0.5, and H<sub>2</sub>TiF<sub>6</sub> 0.5 g/L. The coated strip was dried at 150.degree., inked with MKK94, dried at 150.degree., and bake painted with a polyester at 180.degree.. The painted strip was cold-pressed to manuf. can lids that passed spalling and salt-water corrosion tests.

ST aluminum **strip primer coating**; can lid aluminum **strip coating**; organosilane primer aluminum coating; titanium compd aluminum **strip coating**; zirconium compd aluminum **strip coating**

IT Coating process  
(primer, of aluminum strip for can lids)

IT Cans  
(lids, aluminum **strip** for, primer **coating** bath for)

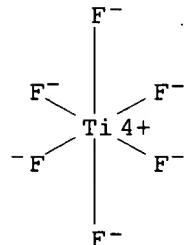
IT 919-30-2 1760-24-3 2530-85-0 12021-95-3 16962-40-6  
**17439-11-1**  
RL: USES (Uses)  
(primer coating in bath contg., of aluminum strip for can lid manuf.)

IT 7429-90-5, Aluminum, uses and miscellaneous  
RL: USES (Uses)  
(primer **coating** on **strip** of, for can lids)

IT **17439-11-1**  
RL: USES (Uses)  
(primer coating in bath contg., of aluminum strip for can lid manuf.)

RN 17439-11-1 HCPLUS

CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2  $\text{H}^+$

L60 ANSWER 47 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1989:99690 HCPLUS

DN 110:99690

TI Paste for removing of steel welding scale and discolored areas

IN Gwardys, Stanislaw; Struszczynski, Henryk; Koch, Stanislaw; Ignacik, Jozef; Czapla, Kazimierz; Ciesielski, Wladzimirz

PA Politechnika Lodzka, Pol.; Fabryka Urzadzen Przemyslu Spozywczego "Faspoma"

SO Pol., 2 pp.  
CODEN: POXXA7

DT Patent

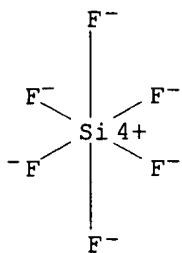
LA Polish

IC ICM C09K013-08

CC 55-6 (Ferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 142387	B1	19871031	PL 1984-250079	19841017
PRAI	PL 1984-250079		19841017		
AB	<p>The paste consists of HF 7-35, H<sub>2</sub>SiF<sub>6</sub> 3-15, H<sub>2</sub>O<sub>2</sub> 5-15, ethylene glycol 1-3 wt. parts, microcryst. cellulose (d.p. 40-300, swelling factor 100-500%), and optionally inorg. or org. pigment (TiO<sub>2</sub>, ZnO) 1-50 wt.% (cellulose basis), glycols (ethylene glycol, propylene glycol) 1-20 wt.% (cellulose basis), and dextrin 1-10 wt. parts. The paste applied to a thickness of .apprx.2 mm is held for .apprx.25 min to dissolve the welding scale and discolored areas, and removed by rinsing with aq. 5-10% Na<sub>2</sub>CO<sub>3</sub>. Thus, a paste contg. 40% HF 26, 40% H<sub>2</sub>SiF<sub>6</sub> 13, 30% H<sub>2</sub>O<sub>2</sub> 12, 50% aq. yellow dextrin soln. 12, Rokafenol N-6 (a polyethylene glycol alkylphenyl ether) 1, Sulfripol (a sulfated fatty alc.) 1, ethylene glycol 2, and Celuloza MP (a microcryst. cellulose) 33% was applied on welded 1H18N9T stainless steel containers for .apprx.25 min and removed with aq. 10% Na<sub>2</sub>CO<sub>3</sub>. Surface of the treated welds was clean and comparable to that of the base metal.</p>				
ST	<p>steel weld scale removal paste; hydrogen peroxide weld scale removal; ethylene glycol weld scale removal; cellulose weld scale removal; dextrin weld scale removal; stainless steel weld scale removal</p>				
IT	<p>Scale (coating) (removal of, from steel welds, paste for)</p>				
IT	<p>Welds (steel, descaling of, paste for)</p>				
IT	<p>107-21-1, Ethylene glycol, uses and miscellaneous 7664-39-3, Hydrofluoric acid, uses and miscellaneous 7722-84-1, Hydrogen peroxide, uses and miscellaneous 9004-34-6, Cellulose, uses and miscellaneous 9004-53-9, Dextrin 16961-83-4, Fluorosilicic acid (H<sub>2</sub>SiF<sub>6</sub>) 26027-38-3 119166-96-0, Sulfripol</p>				
	<p>RL: USES (Uses) (descaling paste contg., for steel welds)</p>				
IT	<p>54611-20-0 RL: USES (Uses) (welds, descaling of, paste for)</p>				
IT	<p>12597-69-2 RL: PEP (Physical, engineering or chemical process); PROC (Process) (welds, steel, descaling of, paste for)</p>				
IT	<p>16961-83-4, Fluorosilicic acid (H<sub>2</sub>SiF<sub>6</sub>) RL: USES (Uses) (descaling paste contg., for steel welds)</p>				
RN	<p>16961-83-4 HCAPLUS</p>				
CN	<p>Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)</p>				

2 H<sup>+</sup>

L60 ANSWER 48 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1989:12182 HCPLUS  
 DN 110:12182  
 TI Pretreatment of aluminum or aluminum alloy parts for lacquering  
 IN Beege, Giesela; Mueller, Gerhard; Rausch, Werner  
 PA Metallgesellschaft A.-G., Fed. Rep. Ger.  
 SO Ger. Offen., 4 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM B05D003-10  
 ICS B05D007-26; C23G001-12; C23C022-07; C23C022-24; C23C022-34;  
 B05D001-14; C25D013-00; C23G005-00  
 CC 56-6 (Nonferrous Metals and Alloys)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3705633	A1	19880901	DE 1987-3705633	19870221
	EP 281176	A1	19880907	EP 1988-200205	19880205
	EP 281176	B1	19910925		
	R: BE, DE, ES, FR, IT, NL, SE				
	ES 2025763	T3	19920401	ES 1988-200205	19880205
	JP 01219175	A2	19890901	JP 1988-31042	19880215
	BR 8800681	A	19881004	BR 1988-681	19880219
PRAI	DE 1987-3705633		19870221		
AB	Abraded Al or Al alloy (AlMg, AlMgMn, or AlMgSi) parts are annealed and/or pickled and conversion coated. The pickling soln. contains HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> and a peroxide, H <sub>2</sub> SO <sub>4</sub> and Fe <sup>3+</sup> , HF, or complex HF and Fe <sup>3+</sup> or peroxide. The conversion coating includes chromating, treatment with H <sub>2</sub> TiF <sub>6</sub> and/or H <sub>2</sub> ZrF <sub>6</sub> , or fluoride-free phosphating. Thus, Al-0.4Mg-1.2% Si alloy parts were heated 2 h at 370.degree., pickled in aq. NaOH, chromated, and lacquered, and the products were scratched and tested for salt-water corrosion to be resistant.				
ST	aluminum pretreatment chromating lacquering; phosphating aluminum alloy lacquering; hydrofluoric acid pickling aluminum lacquering; sulfuric acid pickling aluminum lacquering; nitric acid pickling aluminum lacquering; fluorotitanic acid pickling aluminum lacquering				
IT	Coating process (lacquering, of aluminum or aluminum alloys, pickling and conversion coating for)				
IT	12021-95-3 17439-11-1				

RL: USES (Uses)  
 (in pretreatment of aluminum or aluminum alloys for lacquering)

IT 7664-39-3, Hydrofluoric acid, properties 7664-93-9, Sulfuric acid,  
 properties 7697-37-2, Nitric acid, properties

RL: PRP (Properties)  
 (pickling with, of aluminum or aluminum alloy for pretreatment for  
 lacquering)

IT 11145-10-1 37334-14-8 74566-16-8

RL: USES (Uses)  
 (pretreatment of, for lacquering)

IT 7429-90-5, Aluminum, properties

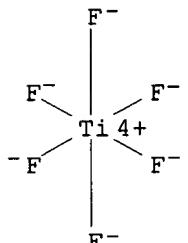
RL: PRP (Properties)  
 (pretreatment of, for lacquering)

IT 17439-11-1

RL: USES (Uses)  
 (in pretreatment of aluminum or aluminum alloys for lacquering)

RN 17439-11-1 HCPLUS

CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2

• 2 H<sup>+</sup>

L60 ANSWER 49 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1988:500515 HCPLUS

DN 109:100515

TI Investigation of corrosion in the development of decontamination solutions for nuclear systems - Part II: The corrosion behavior of several nuclear materials in fluoride containing, complex forming acid solutions

AU Wiedemann, Karl Heinz

CS Paul-Scherrer Inst., Wuerenlingen, CH-5303, Switz.

SO Werkstoffe und Korrosion (1988), 39(6), 283-6

CODEN: WSKRAT; ISSN: 0043-2822

DT Journal

LA German

CC 71-8 (Nuclear Technology)

Section cross-reference(s): 55, 56

AB Aq. solns. of fluoroboric acid, silicofluoric acid, and potassium silicofluoride were used to dissolve the radionuclide-contg. oxide layers on Ni-Cr-alloys of He cooled HTR gas turbines. In these solns. the Ni-Cr-alloy Nimocast 713LC and Mo-alloy TZM as turbine blade materials were only slightly corroded without pitting corrosion. However, they caused heavy pitting corrosion on the mild steel 21CrMoV511 of the turbine rotor. The extensive corrosion rates of mild steel were reduced by .ltoreq.2 orders of

magnitude, by adding suitable, soln. specific inhibitors to the solns.

ST HTR gas turbine material corrosion; **oxide layer dissoln** gas turbine; reactor material decontamination

IT **Turbines**  
(nuclear, corrosion by decontamination solns. for)

IT Decontamination  
(of nuclear power plant **turbines**)

IT **Oxides**, uses and miscellaneous  
RL: USES (Uses)  
(removal of **layers** of, on nuclear power plant **turbines**, decontamination solns. for)

IT Nuclear reactors  
(power plants, decontamination solns. for gas **turbines** of)

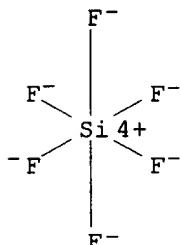
IT 11135-86-7, TZM 12606-58-5 39323-75-6, 21CrMoV511  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(corrosion of, in nuclear power plant **turbine** decontamination solns.)

IT 103-85-5 7681-11-0, properties 16871-90-2 16872-11-0  
**16961-83-4**  
RL: PROC (Process)  
(decontamination soln. contg., for nuclear reactor gas **turbine**)

IT **16961-83-4**  
RL: PROC (Process)  
(decontamination soln. contg., for nuclear reactor gas **turbine**)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

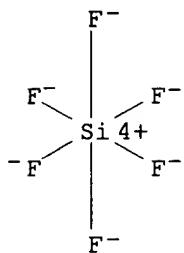


2 H<sup>+</sup>

L60 ANSWER 50 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 1987:124626 HCPLUS  
DN 106:124626  
TI Formation of silicon dioxide coatings  
IN Aida, Takuji; Nagayama, Hirotugu; Kawahara, Hideo  
PA Nippon Sheet Glass Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 3 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C03C015-00

ICA C23C018-12  
 CC 57-1 (Ceramics)  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61281047	A2	19861211	JP 1985-123254	19850606
	JP 05085491	B4	19931207		
	US 5073408	A	19911217	US 1990-580356	19900907
	US 5132140	A	19920721	US 1991-647086	19910129
PRAI	JP 1985-123254		19850606		
	US 1986-869423		19860602		
	US 1989-338503		19890414		
	US 1990-580356		19900907		
AB	<p>A <b>H<sub>2</sub>SiF<sub>6</sub></b> soln. contg. supersatd. SiO<sub>2</sub>, prep'd. by heating a SiO<sub>2</sub>-satd. or subsatd. soln., is made in contact with substrates for forming SiO<sub>2</sub> coatings. The soln. is satd. or subsatd. with SiO<sub>2</sub> at &lt;35.degree., and the temp. raising for coating is &gt;10.degree., but the temp. during coating is &lt;70.degree.. Thus, 2 M <b>H<sub>2</sub>SiF<sub>6</sub></b> solns. were satd. with SiO<sub>2</sub> gel at 15, 10, and 5.degree., the solns. were heated to 40.degree., and soda-lime glass plates were immersed in the soln. for 16 h. The thicknesses of SiO<sub>2</sub> layers formed were 20, 32, and 92 nm, resp. The spent soln. could be reused or be treated for discharging. A spent soln. dild. by a factor of 10, neutralized to pH 12 with Ca(OH)<sub>2</sub>, and filtered had a residual F- of 15 vs. 100 ppm for a spent soln. from a control process adding H<sub>3</sub>BO<sub>3</sub> to <b>H<sub>2</sub>SiF<sub>6</sub></b>. These coatings are useful as antireflection films.</p>				
ST	<p>silica coating fluorosilicic acid glass; waste silica <b>coating fluoride removed</b></p>				
IT	<p>Optical materials            (antireflective films, silica, formation of, from fluorosilicic acid solns.)</p>				
IT	<p>7631-86-9, Silica, uses and miscellaneous            RL: USES (Uses)            (coating with, antireflection, from supersatd. fluorosilicic acid solns.)</p>				
IT	<p><b>16961-83-4</b>            RL: USES (Uses)            (contg. supersatd. silica, for formation of antireflection silica coatings)</p>				
IT	<p>16984-48-8, Fluoride, uses and miscellaneous            RL: <b>REM (Removal or disposal); PROC (Process)</b>            (<b>removal</b> of, from spent fluorosilicic acid solns. for antireflection silica coating)</p>				
IT	<p><b>16961-83-4</b>            RL: USES (Uses)            (contg. supersatd. silica, for formation of antireflection silica coatings)</p>				
RN	<p>16961-83-4 HCPLUS</p>				
CN	<p>Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)</p>				



② H<sup>+</sup>

L60 ANSWER 51 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1986:118622 HCPLUS  
 DN 104:118622  
 TI Surface-treated steel sheets  
 IN Shimizu, Nobuyoshi; Fujimoto, Terunori; Inui, Tsuneo; Ishida, Masatoki  
 PA Toyo Kohan Co., Ltd., Tokyo, Japan  
 SO Brit. UK Pat. Appl., 18 pp.  
 CODEN: BAXXDU  
 DT Patent  
 LA English  
 IC ICM C25D005-10  
 ICS C25D009-08  
 CC 72-8 (Electrochemistry)  
 Section cross-reference(s): 17, 55, 56  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2158842	A1	19851120	GB 1984-12773	19840518
	GB 2158842	B2	19880203		
PRAI	GB 1984-12773		19840518		

AB The steel sheet has a bottom layer contg. Cr .gtoreq.30; middle layer Sn or Sn-Ni alloy .gtoreq.10 mg/m<sup>2</sup> contg. Ni 20-60 wt.%; and a top layer of hydrated Cr oxide 2-18 mg/m<sup>2</sup>, calcd. as Cr. The sheets are prep'd. by (a) Cr electroplating a steel base to form a layer of Cr and hydrated Cr oxide; (b) Sn or Sn-Ni alloy plating under conditions sufficiently acidic to substantially **dissolve** the hydrated Cr **oxide**; or cathodically treating the Cr-plated steel base in acid soln. to **remove** the Cr **oxide** hydrate with subsequent Sn or Sn-Ni alloy plating; (c) chromating to form a layer of Cr oxide hydrate. The 3-layer steel sheets, weldable and corrosion-resistant, are used to manuf. food cans.  
 ST chromium tin nickel electroplating steel; hydrated chromium oxide layer steel; surface treatment steel sheet can; food can chromated electroplated steel  
 IT Food  
     (cans for, chromated tin- or tin-nickel alloy-electroplated steel for)  
 IT Cans  
     (chromated tin- or tin-nickel alloy-electroplated steel for)  
 IT Coating materials  
     (chromates, on chromium- and tin- or tin-nickel alloy-electroplated steel, for cans)

IT Alkali metal fluorides  
RL: PRP (Properties)  
(in electroplating of chromium on steel, with subsequent tin or  
tin-nickel alloy plating and chromating)

IT Coating process  
(chromating, electrochem., on tin or tin-nickel-plated steel)

IT 7440-31-5, uses and miscellaneous 12658-27-4  
RL: PRP (Properties)  
(electroplating of, on chromium-plated steel, with subsequent  
chromating)

IT 7440-47-3, uses and miscellaneous  
RL: PRP (Properties)  
(electroplating of, on steel, with subsequent tin or tin-nickel alloy  
plating and chromating)

IT 50814-20-5P  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in chromating of tin- or tin-iron alloy-electroplated  
steel)

IT 7664-39-3, uses and miscellaneous 7664-93-9, uses and miscellaneous  
7664-93-9D, alkali metal salts 7681-49-4, uses and  
miscellaneous 7782-99-2D, alkali metal salts 7783-18-8  
7783-20-2, uses and miscellaneous 7784-18-1 10043-01-3 10196-04-0  
12125-01-8  
RL: USES (Uses)  
(in electroplating of chromium on steel, with subsequent tin or  
tin-nickel alloy plating and chromating)

IT 96-77-5 96-77-5D, alkali metal salts 1333-39-7 1333-39-7D,  
alkali metal salts 1341-49-7 13686-28-7D, alkali  
metal salts 13826-83-0 14874-70-5D, alkali metals  
16872-11-0 16893-85-9 16919-19-0 **16961-83-4** 17084-08-1D,  
alkali metals 100779-48-4 100779-49-5  
RL: PRP (Properties)  
(in electroplating of chromium on steel, with subsequent tin or  
tin-nickel alloy plating and chromating)

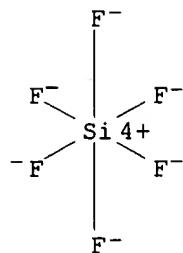
IT 7647-01-0, uses and miscellaneous  
RL: USES (Uses)  
(in removal of chromium oxide hydrate layer on  
chromium-electroplated steel prior to tin or tin-alloy electroplating  
and chromating)

IT **16961-83-4**  
RL: PRP (Properties)  
(in removal of chromium oxide hydrate layer on  
chromium-electroplated steel prior to tin or tin-alloy electroplating  
and chromating)

IT **16961-83-4**  
RL: PRP (Properties)  
(in electroplating of chromium on steel, with subsequent tin or  
tin-nickel alloy plating and chromating)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

## RL: PRP (Properties)

(in removal of chromium oxide hydrate layer on  
chromium-electroplated steel prior to tin or tin-alloy electroplating  
and chromating

L60 ANSWER 52 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1986:118613 HCPLUS

DN 104:118613

TI Three-layer tin-free steel

IN Fujimoto, Terunori; Shimizu, Nobuyoshi; Shimizu, Mutsuhiro; Yanagihara,  
Kazunori; Miyachi, Akio; Inui, Tsuneo

PA Toyo Kohan Co., Ltd., Tokyo, Japan

SO Ger. Offen., 37 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM C25D005-10

ICS C25D005-12; C25D009-08; C25D011-38

CC 72-8 (Electrochemistry)

Section cross-reference(s): 55

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 3414980	A1	19851107	DE 1984-3414980	19840419

PRAI DE 1984-3414980 19840419

AB The steel has a base layer of Cr, an intermediate layer of Ni, and a surface layer of Cr oxide hydrate. The continuous process for forming these layers comprises: (a) Cr plating a base steel to form a layer of Cr and Cr oxide hydrate; (b) Ni plating with sufficient acid to dissolve the Cr oxide hydrate or cathodic treatment in acid soln. to remove the Cr oxide hydrate, and then Ni plating; (c) producing a Cr oxide hydrate layer on the Cr- and Ni-plated base steel. The Sn-free steel produced is suitable for high-speed prepns. of welded cans without removal of the plated layer in the welded region.

ST multilayer plating steel can; chromium electroplating steel can; nickel electroplating steel can; coating chromium oxide hydrate steel; chromating electroplated steel can

IT Coating materials

(chromates, on chromium- and nickel-electroplated steel, for cans)

IT Alkali metal fluorides

RL: PRP (Properties)

(in electroplating of chromium on steel, with subsequent chromium

oxide hydrate removal and nickel plating and chromating)

IT Cans  
(steel, contg. three layers)

IT Coating process  
(chromating, electrochem., on nickel plated steel)

IT 50814-20-5  
RL: PRP (Properties)  
(coating of, on steel, following chromium electroplating, chromium oxide hydrate removal, and nickel plating)

IT 7440-02-0, uses and miscellaneous  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(electroplating of, on chromium-plated steel, with subsequent chromating)

IT 7440-47-3, uses and miscellaneous  
RL: PRP (Properties)  
(electroplating of, on steel, with subsequent nickel plating and chromating)

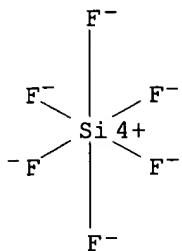
IT 7664-93-9D, alkali metal salts 7782-99-2D, alkali metal salts 7783-18-8 7783-20-2, uses and miscellaneous 7784-18-1  
RL: USES (Uses)  
(in electroplating of chromium on steel, with subsequent chromium oxide hydrate removal and nickel plating and chromating)

IT 96-77-5 96-77-5D, alkali metal salts 1333-39-7 1333-39-7D,  
alkali metal salts 1341-49-7 10196-04-0 12125-01-8  
13686-28-7D, alkali metal salts 13826-83-0 14489-25-9  
14874-70-5D, alkali metals 16872-11-0 16919-19-0  
**16961-83-4** 17084-08-1D, alkali metals 100779-48-4  
100779-49-5  
RL: PRP (Properties)  
(in electroplating of chromium on steel, with subsequent chromium oxide hydrate removal and nickel plating and chromating)

IT 7647-01-0, uses and miscellaneous 7664-39-3, uses and miscellaneous  
7664-93-9, uses and miscellaneous 10043-35-3, uses and miscellaneous  
RL: USES (Uses)  
(in removal of chromium oxide hydrate layer on chromium-electroplated steel prior to nickel electroplating and chromating)

IT **16961-83-4**  
RL: PRP (Properties)  
(in electroplating of chromium on steel, with subsequent chromium oxide hydrate removal and nickel plating and chromating)

RN 16961-83-4 HCPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



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L60 ANSWER 53 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1985:83118 HCPLUS  
 DN 102:83118  
 TI Wear-resistant layers on the surfaces of titanium or titanium alloy parts  
 IN Thoma, Martin  
 PA Motoren- und Turbinen-Union Muenchen G.m.b.H., Fed. Rep. Ger.  
 SO Ger. Offen., 8 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC C23C017-00; C23C003-02; C23C011-14; C23F001-00; C25D003-12  
 CC 56-6 (Nonferrous Metals and Alloys)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3321231	A1	19841213	DE 1983-3321231	19830611
	DE 3321231	C2	19851031		
	EP 128383	A1	19841219	EP 1984-105503	19840515
	EP 128383	B1	19881109		
	R: FR, GB, IT, SE				
	US 4588480	A	19860513	US 1984-612793	19840522
PRAI	DE 1983-3321231		19830611		
AB	Ti or Ti alloys are electroplated from a Ni sulfamate bath or electroless-coated from a hypophosphite bath with 5-50. $\mu\text{m}$ -thick Ni, then heat-treated 30 min-300 h at 400-950. $^\circ\text{C}$ . in air or vacuum to form $\text{Ti}_2\text{Ni}$ [12142-89-1] and $\text{TiNi}_3$ [12035-74-1] layers, followed by removal of the remaining top Ni layer or addnl. the $\text{TiNi}_3$ layer by etching with $\text{HNO}_3$ on a cyanide nitroarom. soln. at 10-60. $^\circ\text{C}$ . for 15 min-2 h to increase the erosion and wear resistance and improve the coating adhesion under severe service conditions. For static loading the hard $\text{TiNi}_3$ top layer is used, but for dynamic (rotary and/or alternating) loading, the relatively tougher $\text{Ti}_2\text{Ni}$ is left on the surface after etching. The substrate is etched with $\text{HNO}_3$ -HF solns. and activated in a bath contg. chromic acid, HF, and $\text{H}_2\text{SiF}_6$ . The Vickers hardness of the apprx. 4. $\mu\text{m}$ -thick coating on Ti-6Al-4V [12743-70-3] contg. Ni, $\text{TiNi}_3$ , and $\text{Ti}_2\text{Ni}$ after heat treatment 8 h at 600. $^\circ\text{C}$ . was 240, 140, 1000, and 600 for the substrate, Ni, $\text{TiNi}_3$ , and $\text{Ti}_2\text{Ni}$ , resp.				
ST	titanium cementation nickel wear resistance				
IT	Etching (of titanium alloys coated with nickel, followed by cementation heat treatment, for wear resistance)				

IT Cementation  
     (of titanium, with nickel for wear resistance)

IT Coating process  
     (electroless, of titanium, with nickel, followed by cementation heat treatment, for wear resistance)

IT Titanium alloy, base  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (cementation of, with nickel for wear resistance)

IT 7440-32-6, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (cementation of, with nickel for wear resistance)

IT 12743-70-3  
     RL: PEP (Physical, engineering or chemical process); PROC (Process)  
     (coating of, with nickel followed by diffusion heat treatment for wear resistance)

IT 12035-74-4 12142-89-1  
     RL: USES (Uses)  
     (coating with, of titanium for wear resistance)

IT 7440-02-0, uses and miscellaneous  
     RL: USES (Uses)  
     (electroplating with, of titanium alloys followed by diffusion heat treatment for wear resistance)

IT 7664-39-3, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (etching by nitric acid contg., of titanium coated with nickel for cementation, for wear resistance)

IT 7697-37-2, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (etching by, of nickel-coated titanium after cementation, for wear resistance)

L60 ANSWER 54 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1985:11119 HCAPLUS

DN 102:11119

TI Etching apparatus

PA Fujitsu Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C23F001-08; H01L021-306

CC 56-6 (Nonferrous Metals and Alloys)

Section cross-reference(s): 47

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59166675	A2	19840920	JP 1983-40902	19830311
PRAI	JP 1983-40902		19830311		
AB	An SiO <sub>2</sub> film on a Si substrate is etched uniformly in an app. comprising a HF(g) generator connected by a pipe to a chamber contg. a rotating disk. The substrate on the disk is exposed to HF(g) fed toward the center of the disk for uniform exposure.				
ST	silicon dioxide film etching app; hydrogen fluoride silicon dioxide etching				
IT	<b>Etching</b> (of silicon dioxide films, with hydrogen fluoride, app. for)				
IT	7631-86-9, reactions				

RL: RCT (Reactant); RACT (Reactant or reagent)  
     (etching of films of, with hydrogen fluoride, app.  
     for)

IT 7664-39-3, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
         (etching with, of silicon dioxide films, app. for)

IT 7631-86-9, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
         (etching of films of, with hydrogen fluoride, app.  
         for)

RN 7631-86-9 HCAPLUS  
     CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
         (etching with, of silicon dioxide films, app. for)

RN 7664-39-3 HCAPLUS  
     CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

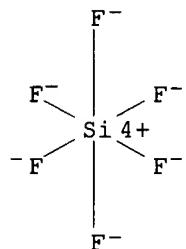
## HF

L60 ANSWER 55 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
     AN 1984:634429 HCAPLUS  
     DN 101:234429  
     TI Detecting structure inhomogeneities in titanium alloy samples and welded  
         parts  
     IN Thoma, Martin  
     PA Motoren- und Turbinen-Union Muenchen G.m.b.H., Fed. Rep. Ger.  
     SO Eur. Pat. Appl., 9 pp.  
         CODEN: EPXXDW  
     DT Patent  
     LA German  
     IC C23F001-00; G01N001-32  
     CC 56-8 (Nonferrous Metals and Alloys)  
     FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 120340	A1	19841003	EP 1984-102201	19840301
	EP 120340	B1	19861112		
	R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
	US 4551434	A	19851105	US 1984-582253	19840222
	AT 23576	E	19861115	AT 1984-102201	19840301
PRAI	DE 1983-3309448		19830316		
	EP 1984-102201		19840301		
AB	An etching bath of 40-80.degree., for improved contrast of .alpha.- and .beta.-phase, grain boundaries, segregations of a phase or impurities (O- and N segregations) in Ti alloys and their welds, contains CrO <sub>3</sub> , HF, and/or H <sub>2</sub> SiF <sub>6</sub> and As, Sb, or Si compd. at mol ratios F/As(Sb,Si) 5-8, and Cr/As(Sb,Si) 3-6 at As,Sb, or Si 0.1-2 mol/L optionally H <sub>2</sub> SiF <sub>6</sub> is replaced by Sb <sub>2</sub> O <sub>3</sub> , SbF <sub>3</sub> , or As <sub>2</sub> O <sub>3</sub> at the above mol. ratio and concn. The specimen is vapor-phase degreased (trichloroethene)				

blasted with 270 mesh Al<sub>2</sub>O<sub>3</sub> abrasive at 4-5 bar, the surface is preetched 2-20 min with HNO<sub>3</sub>-HF soln., esp. 400 HNO<sub>3</sub> and 5 g HF/L, and rinsed prior to etching for metallog., and rinsed again, and dried. Thus, the specimen surface, after the above pretreatment, was finish-etched in a CrO<sub>3</sub>/H<sub>2</sub>SiF<sub>6</sub>/HF soln. at mol ratio 1.8/10.6/0.3, water rinsed, and dried. The layer thickness, removed by 15-min etching in HNO<sub>3</sub>-HF soln. was 2-4 and in CrO<sub>3</sub>-HF-H<sub>2</sub>SiF<sub>6</sub> .apprx.2 .mu.. Welded specimens were wet-blasted with 240-mesh abrasive, pre-etched 10 min in HNO<sub>3</sub> 400 and HF 5 g/L, washed 0.25 min each at 20.degree., finish-etched 5-15 min in CrO<sub>3</sub>-HF-H<sub>2</sub>SiF<sub>6</sub> at mol ratio 3:0.6:1.2 and 60.degree., water washed at 20.degree., and dried by compressed air.

ST titanium weld structure etching bath; metallog titanium alloy weld  
 IT Welds  
     (titanium alloy, etching bath for, for metallog.)  
 IT Etching  
     (selective, of titanium alloys and welds, for metallog., baths for)  
 IT Titanium alloy, base  
 RL: PRP (Properties)  
     (structure of, etching bath for metallog. of)  
 IT 7697-37-2, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
     (etching in bath contg., of titanium alloys for metallog.)  
 IT 7664-39-3, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
     (etching in nitric acid bath contg., of titanium alloys for metallog.)  
 IT 7783-56-4 **16961-83-4**  
 RL: USES (Uses)  
     (finish etching in bath contg., of titanium alloys for metallog.)  
 IT 1309-64-4, reactions 1327-53-3 1333-82-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
     (finish etching in bath contg., of titanium alloys for metallog.)  
 IT **16961-83-4**  
 RL: USES (Uses)  
     (finish etching in bath contg., of titanium alloys for metallog.)  
 RN 16961-83-4 HCPLUS  
 CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 56 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1981:70104 HCPLUS  
 DN 94:70104  
 TI Surface treatment of metals

IN Oppen, Dieter; Lampatzer, Karl  
 PA Metallgesellschaft A.-G., Fed. Rep. Ger.  
 SO Ger. Offen., 13 pp.  
 CODEN: GWXXBX

DT Patent

LA German

IC C23F007-08; B05D003-10; B05D007-16

CC 56-5 (Nonferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2905535	A1	19800904	DE 1979-2905535	19790214
	EP 15020	A1	19800903	EP 1980-200096	19800205
	EP 15020	B1	19830223		
	EP 15020	B2	19860205		
	R: BE, DE, FR, SE				
	GB 2041987	A	19800917	GB 1980-4613	19800212
	GB 2041987	B2	19830727		
	CA 1133362	A1	19821012	CA 1980-345534	19800212
	JP 55131176	A2	19801011	JP 1980-17162	19800214
	JP 59031593	B4	19840802		
	US 4264378	A	19810428	US 1980-121569	19800214

PRAI DE 1979-2905535 19790214

AB The degreased Al surface is phosphated in an Al, Zn, Mg, Mn, Co, or Ni phosphate soln. for coating with a vinyl resin or epoxy-phenolic resin lacquer. The phosphating soln. contains also: (1) MoO42-, WO42-, or VO3-; (2) HBF4 [16872-11-0], H2TiF6 [17439-11-1], H2ZrF6 [12021-95-3], or H2SiF6 [16961-83-4]; (3) SiO2; and (4) glucose [50-99-7], ascorbic acid [50-81-7], hydrazine [302-01-2], Na hypophosphite [7681-53-0], NH2OH, or MeCHO [75-07-0] as a reducing agent. Thus, an Al strip was degreased in an aq. soln. contg. 5g H2SO4/L, 0.5 g ethoxylated alkylphenol/L, and 0.05 g HF/L, followed by phosphating with a soln. contg. PO43- 20, Zn 6.5, VO3- 1.06, H2TiF6 1.6, ascorbic acid 5, and SiO2 1.2 g/L. The Al strip was dried at 80.degree. to obtain a 124 mg/m2 phosphate layer and the phosphated strip was coated with a vinyl resin or epoxy-phenolic resin lacquer of high adhesive strength and corrosion resistance.

ST aluminum coating phosphate lacquer

IT Molybdates

Tungstates

Vanadates

RL: USES (Uses)

(aluminum coating with phosphates from bath contg.)

IT Coating process

(of aluminum, with phosphates and lacquers)

IT 50-81-7, uses and miscellaneous 50-99-7, uses and miscellaneous  
 75-07-0, uses and miscellaneous 302-01-2, uses and miscellaneous  
 7631-86-9, uses and miscellaneous 7681-53-0 7803-49-8, uses and  
 miscellaneous 10043-83-1 10124-54-6 12021-95-3 13765-93-0  
 13847-22-8 14396-43-1 16872-11-0 **16961-83-4** 17409-91-5  
**17439-11-1**

RL: USES (Uses)

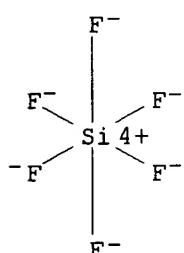
(aluminum coating with phosphates from bath contg.)

IT 108-95-2D, alkyl derivs., ethoxylated 7664-39-3, uses and miscellaneous  
 7664-93-9, uses and miscellaneous

RL: USES (Uses)

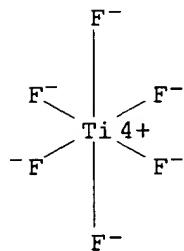
(aluminum degreasing in soln. contg., before coating with phosphates  
 and lacquers)

IT 7429-90-5, uses and miscellaneous  
RL: USES (Uses)  
(coating of, with phosphates and lacquer)  
IT 16961-83-4 17439-11-1  
RL: USES (Uses)  
(aluminum coating with phosphates from bath contg.)  
RN 16961-83-4 HCPLUS  
CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)



2 H<sup>+</sup>

RN 17439-11-1 HCPLUS  
CN Titanate(2-), hexafluoro-, dihydrogen, (OC-6-11)- (9CI) (CA INDEX NAME)



2 H<sup>+</sup>

L60 ANSWER 57 OF 65 HCPLUS COPYRIGHT 2003 ACS  
AN 1978:516559 HCPLUS  
DN 89:116559  
TI Electroless deposition of metals onto zirconium articles  
IN Donaghly, Robert Erandel  
PA General Electric Co., USA  
SO Ger. Offen., 19 pp.  
CODEN: GWXXBX  
DT Patent  
LA German  
IC C23C003-02  
CC 56-5 (Nonferrous Metals and Alloys)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2744254	A1	19780406	DE 1977-2744254	19771001
	DE 2744254	B2	19810806		
	DE 2744254	C3	19820519		
	US 4093756	A	19780606	US 1976-729860	19761004
	SE 7711108	A	19780405	SE 1977-11108	19771004
	FR 2366377	A1	19780428	FR 1977-29752	19771004
	FR 2366377	B1	19820730		
	JP 53062737	A2	19780605	JP 1977-118692	19771004
	JP 56051226	B4	19811203		
	ES 462906	A1	19801201	ES 1977-462906	19771004
	CA 1100434	A1	19810505	CA 1977-288487	19771006
	BE 887585	A7	19810819	BE 1981-203843	19810219
PRAI	US 1976-729860		19761004		
AB	Adherent Cu or Ni coatings are electrolessly deposited on Zr, such as Zircaloy 2 [11068-94-3] tubes, by activating the surface in an acidic bath, followed by removal of the loose layer, then coating. Suitable acidic baths include a mixt. of (NH4)2F2 10-20 and H2SO4 or HNO3 0.75-2 g/L. Etching is done for .apprx.10 min at 20-30.degree.. The loose layer is removed, after rinsing with deionized H2O, by ultrasound, mech., or by washing with an aq. BF3 or H2SiF6 soln. Subsequently, an electroless Cu or Ni film of 3-15 .mu. is deposited. Cu coatings are deposited at .apprx.60.degree., Ni at .apprx.95.degree.. The pore-free adherent film is further improved by diffusion annealing at 150-200.degree..				
ST	copper electroless coating zirconium; nickel electroless coating zirconium				
IT	Coating process (electroless, with copper or nickel on zirconium and zirconium alloys)				
IT	7440-67-7, uses and miscellaneous 11068-94-3				
	RL: USES (Uses) (coating of, with copper or nickel)				
IT	7440-02-0, uses and miscellaneous 7440-50-8, uses and miscellaneous				
	RL: USES (Uses) (coating with, on zirconium and zirconium alloys)				
L60	ANSWER 58 OF 65 HCPLUS COPYRIGHT 2003 ACS				
AN	1978:181324 HCPLUS				
DN	88:181324				
TI	Selective etching of silicone-containing materials				
IN	Stein, Leonard				
PA	General Electric Co., USA				
SO	Ger. Offen., 22 pp. CODEN: GWXXBX				
DT	Patent				
LA	German				
IC	C23F001-02				
CC	76-13 (Electric Phenomena) Section cross-reference(s): 36				
FAN.CNT 2					
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2739847	A1	19780309	DE 1977-2739847	19770903
	DE 2739847	C2	19850926		
	US 4140572	A	19790220	US 1976-720584	19760907
PRAI	US 1976-720584		19760907		
AB	A layer of hardened silicone-polyimide copolymer is formed on a semiconductor device, a Ti layer is deposited on the copolymer, a pos.				

photoresist layer is formed on the Ti, windows are formed in the photoresist, windows are etched in the Ti by **fluoroboric acid**, and then windows are etched in the copolymer layer by a phenol-contg. soln. The copolymer is a reaction product of a Si-free org. diamine, an org. tetracarboxylic acid dianhydride, and a polysiloxane. Thus, a polymer **precursor** soln. was found by reaction of benzophenonetetracarboxylic acid dianhydride with methylenedianiline and bis(3-aminopropyl)tetramethyldisiloxane, with the last 2 in a mol ratio of 70:30, at <50.degree.. Then 7-10 drops of a soln. of the polymer **precursor** in the form of the polyamic acid dissolved in N-methyl-2-pyrrolidone with 25% solids was placed on a Si wafer contg. many devices and the wafter was spun at 2000-3000 rpm. The coating was hardened .apprx.30 min at 135.degree. in N, 30 min at 185.degree. in N, and .apprx.2 h at 225.degree. in partial vacuum. The hardened layer was 1.5-2 .mu.m thick. A Ti layer .apprx. 1000 .ANG. thick was vapor-deposited on the polymer layer, followed by a layer of pos. photoresist. The photoresist was exposed and developed to form windows, through which the Ti was etched 30-60 s at room temp. in fluoroboric acid. The photoresist **layer** was **dissolved** in Me<sub>2</sub>CO and the wafer was rinsed with iso-PrOH and dried. Then the copolymer layer was etched .apprx.2 min at 60.degree. in a phenol-contg. stripping soln. The wafers were immersed in Me<sub>2</sub>CO agitated by ultrasound for .apprx.15 s and rinsed with iso-PrOH, and the Ti mask was removed. The exposed Al contact surfaces were not attacked by the etchants, the windows were well defined, and the edges of the copolymer showed no visible undercutting.

ST siloxane polyimide coating etching; semiconductor siloxane polyimide coating; silicon siloxane polyimide coating

IT Semiconductor devices

(etching of siloxane polyimide layers on)

IT Etching

(of siloxane polyimide layers on semiconductor devices)

IT Siloxanes and Silicones, uses and miscellaneous

(polyimide, etching of layers of, on semiconductor devices)

IT Polyimides, uses and miscellaneous

(siloxane, etching of layers of, on semiconductor devices)

IT 7440-21-3, uses and miscellaneous

RL: DEV (Device component use); USES (Uses)

(devices, selective etching of siloxane polyimide layers on)

IT 62891-63-8

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(etching of layers of, on semiconductor devices)

L60 ANSWER 59 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1974:136571 HCAPLUS

DN 80:136571

TI Mechanism of the corrosion of titanium and its alloys and development of optimum conditions for protection from corrosion in corrosive media using inhibitors

AU Brynza, A. P.; Gerasytina, L. I.; Sotnikova, V. I.; Vinichenko, I. G.; Lobanova, S. N.; Vorotyagina, V. D.; Naprienko, S. P.; Danilova, L. M.; Legashova, T. P.; et al.

CS USSR

SO Nekot. Aktual. Vop. Sovrem. Estestvozn. (1971), 168-73. Editor(s): Dontsova, Z. S. Publisher: Dnepropetrovsk. Gos. Univ., Dnepropetrovsk, USSR.

CODEN: 27IQAX

DT Conference

LA Russian  
 CC 56-8 (**Nonferrous Metals and Alloys**)  
 AB Electrochem. corrosion and passivation of Ti in aq. acid solns. were studied. Investigate were (1) the mechanism of retardation of electrochem. dissoln. of Ti in aq. solns. of H<sub>2</sub>SO<sub>4</sub>, HCl, H<sub>3</sub>PO<sub>4</sub>, H<sub>2</sub>SiF<sub>6</sub> and their mixts. at 20-80.degree. by anodic polarization by an external current and by addn. of org. inhibitors of the oxidizing and adsorbing type (2) corrosion of porous sintered Ti in aq. H<sub>2</sub>SO<sub>4</sub>, HCl, HNO<sub>3</sub> and some chloride solns. (3) corrosion resistance and electrochem. behavior of Ti-O (.ltoreq. 33 at. % O) system as well as of the Ti-N, Zr-N, Hf-N, Ti-C, Zr-C, and Hf-C systems in the region of homogeneity in solns. of acids contg. H<sub>2</sub>O<sub>2</sub>. The stabilities of carbide and nitride coatings on Ti in acid solns. contg. oxidizing media were also studied. A method for electrochem. pickling of Ti for removal of scale is described.  
 ST titanium corrosion mechanism prevention; passivation titanium aq acid; pickling titanium scale removal; carbide coating titanium corrosion; nitride coating titanium corrosion  
 IT Pickling  
     (electrochem., of titanium)  
 IT Corrosion inhibitors  
     (for titanium and titanium alloys)  
 IT Scale (**coating**)  
     (**removal of**, from titanium by electrochem. pickling)  
 IT Titanium alloy, base  
     RL: PEP (Physical, engineering or chemical process); PROC (Process)  
         (corrosion of, coatings and inhibitors for prevention of)  
 IT 7440-32-6, reactions  
     RL: PEP (Physical, engineering or chemical process); PROC (Process)  
         (corrosion of, coatings and inhibitors for prevention of)  
 IT 39428-69-8   52359-82-7   52359-98-5   52360-07-3   52360-47-1  
     52360-50-6   52360-51-7  
     RL: PEP (Physical, engineering or chemical process); PROC (Process)  
         (corrosion of, inhibitors for)

L60 ANSWER 60 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1974:4052 HCAPLUS

DN 80:4052

TI Pure poly(alkylene ethers)

IN Lengsfeld, Wolfgang

PA Badische Anilin- und Soda-Fabrik A.-G.

SO Ger. Offen., 11 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C08G

CC 35-3 (**Synthetic High Polymers**)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2204515	A1	19730809	DE 1972-2204515	19720201
PRAI	DE 1972-2204515		19720201		
AB	Pure polyethylenepolypropylene glycol glycerol triether (I) [9082-00-2] or a similar compd. was prep'd. by polymn. over potassium hydroxide [1310-58-3] or sodium hydroxide [1310-73-2] with susequent binding of the catalyst by hexafluorosilicic acid (II) [16961-83-4]. Thus, a 933:5000 parts ethylene oxide-propylene oxide mixt. was added to glycerol 92.1, H <sub>2</sub> O 12, and KOH 13.1 parts within 15 hr at 115.deg. and 3.5 atm gage to give crude I of OH no. 41 and KOH content 0.22%. Crude I (150 parts)				

and 4.5 parts H<sub>2</sub>O were heated 30 min at 100.deg., the mixt. neutralized with 30% II (d. 1.32 g/ml), kept 1 hr at 100.deg., and filtered to give I of base no. <0.02, Na<sup>+</sup> content <0.5 ppm, and K<sup>+</sup> content 3 ppm.

ST polyalkylene ether manuf purity; fluorosilicic acid polyether purifn; catalyst removal polyether

IT Polymerization catalysts  
(alk. metal hydroxides, removal of residual, from polyethers)

IT Polyoxalkylenes  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(manuf. of, alk. catalyst removal in, fluosilicic acid for)

IT 16961-83-4  
RL: USES (Uses)  
(alk. catalysts removal by, in polyether manuf.)

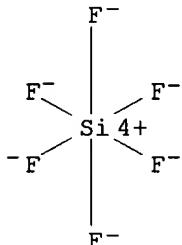
IT 1310-58-3, uses and miscellaneous 1310-73-2, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, removal of residual, from polyethers)

IT 9008-81-5P 25765-36-0P 26062-52-2P  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(manuf. of, alk. catalysts removal in, fluosilicic acid for)

IT 16961-83-4  
RL: USES (Uses)  
(alk. catalysts removal by, in polyether manuf.)

RN 16961-83-4 HCPLUS

CN Silicate(2-), hexafluoro-, dihydrogen (8CI, 9CI) (CA INDEX NAME)

2 H<sup>+</sup>

L60 ANSWER 61 OF 65 HCPLUS COPYRIGHT 2003 ACS  
 AN 1972:566810 HCPLUS  
 DN 77:166810  
 TI Purification of fluorine-containing solutions  
 IN Kadotani, In; Isobe, Seishiro; Shiraki, Yoshiro  
 PA Central Glass Co., Ltd.  
 SO Jpn. Tokkyo Koho, 6 pp.  
 CODEN: JAXXAD  
 DT Patent  
 LA Japanese  
 IC C01D; C01C  
 CC 49-10 (Industrial Inorganic Chemicals)  
 FAN.CNT 1

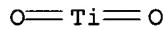
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 47002417 B4 19720122 JP 1968-68370 19680922  
 AB The F-contg. solns., obtained by the decompn. of **H2SiF6** or alkali fluorosilicate, such as  $(\text{NH}_4)_2\text{SiF}_6$  and  $\text{Na}_2\text{SiF}_6$ , with  $\text{NH}_4\text{OH}$  or alkali solns. are purified by adding milk of lime or a sol. Ca compd. such as  $\text{CaCl}_2$ , or a mixt. of these. Thus, the P2O5 content of an  $\text{NaSiF}_6$  soln. contg. 0.061% P2O5 became 0.00035% after a treatment with 2.0 vol. % milk of lime contg. 150 g  $\text{CaO}/\text{l}$ .  
 ST phosphate removal fluoride soln  
 IT 1305-62-0 1305-78-8, uses and miscellaneous  
 RL: USES (Uses)  
     (in phosphorus **oxide removal**, from sodium hexafluorosilicate)  
 IT 16893-85-9P  
 RL: PREP (Preparation)  
     (phosphorus **oxide removal** from, by calcium hydride-calcium oxide solns.)  
 IT 1314-56-3  
 RL: REM (Removal or disposal); PROC (Process)  
     (**removal** of, from sodium hexafluorosilicate by calcium hydride-calcium oxide solns.)  
  
 L60 ANSWER 62 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1972:437854 HCAPLUS  
 DN 77:37854  
 TI **Dissolution** of oxides and scale formed on alloy steels in etching solutions  
 AU Maksimenko, M. N.; Podobaev, N. I.  
 CS Mosk. Gos. Pedagog. Inst. im. Lenina, Moscow, USSR  
 SO Uchenye Zapiski, Moskovskii Gosudarstvennyi Pedagogicheskii Institut (1969), No. 303, 144-50  
 CODEN: UMPLA6; ISSN: 0372-4387  
 DT Journal  
 LA Russian  
 CC 55-6 (Ferrous Metals and Alloys)  
 AB The dissoln. of scale on the steels 12Kh1MF, Kh8, and EI756 which contain 1, 8, and 13% Cr, resp., was studied along with that of  $\text{FeO}$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$ ,  $\text{NiO}$ , and  $\text{TiO}_2$  in solns. of  $\text{HNO}_3$ ,  $\text{HCl}$ ,  $\text{H}_2\text{SO}_4$ , and  $\text{HF}$  of various strengths as well as in various acid mixts. The effects of various additives, such as acetylacetone, urea, thiourea, and hexamethylenetetramine, were studied. The scales and oxides are practically insol. in  $\text{HNO}_3$  except for  $\text{NiO}$  and the scale on steel 12Kh1MF. The dissoln. of all scales and the Fe oxides in  $\text{HNO}_3$  solns. is promoted by  $\text{HF}$  and  $\text{Cl}^-$ ;  $\text{SO}_4^{2-}$ -promote only the **dissoln.** of Fe oxides. The dissoln. rate depends on the surface activity of the anions and their tendency toward complex formation. Thiourea stimulates the **dissoln.** of the **oxides** and scales.  
 ST scale alloy steel dissoln; **oxide** alloy steel **dissoln**; chromium steel scale removal; acid scale removal steel; steel chromium scale removal; nitric acid steel descaling; acetylacetone steel descaling; urea steel descaling; thiourea steel descaling; hexamethylenetetramine steel descaling  
 IT Solution rate  
     (of oxides and scale on steel, effect of corrosion inhibitors on)  
 IT Pickling  
     (of steel, corrosion inhibitor effect on solution rate of oxides and scale in)  
 IT Scale (**coating**)  
     (**removal** of, from steel, corrosion inhibitors in)

IT 14808-79-8 16887-00-6  
 RL: USES (Uses)  
 (soln. of oxides and scale from steel in nitric acid contg.)  
 IT 7664-39-3, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (soln. of oxides and scale from steel in nitric acid contg.)  
 IT 57-13-6, reactions 62-56-6, reactions 100-97-0, reactions 123-54-6,  
 reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (soln. of oxides and scale in acid solns. contg.)  
 IT 1308-38-9, reactions 1309-37-1, reactions 1313-99-1, reactions  
 1317-61-9 1345-25-1, reactions 13463-67-7, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (soln. of, in pickling of steel, effect of corrosion inhibitors on)  
 IT 7664-39-3, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (soln. of oxides and scale from steel in nitric acid contg.)  
 RN 7664-39-3 HCAPLUS  
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

## HF

IT 13463-67-7, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (soln. of, in pickling of steel, effect of corrosion inhibitors on)  
 RN 13463-67-7 HCAPLUS  
 CN Titanium oxide (TiO<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)



L60 ANSWER 63 OF 65 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1967:475522 HCAPLUS  
 DN 67:75522  
 TI Removing iron, alumina, and silica from manganese dioxide ores by leaching  
 IN Welsh, Jay Y.  
 PA Manganese Chemicals Corp.  
 SO U.S., 5 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 NCL 075101000  
 CC 54 (Extractive Metallurgy)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 3330649		19670711	US	19640527	
AB	High-grade ore ground through 100 mesh, in which most of the Mn is present as MnO <sub>2</sub> , is up-graded, often to "battery grade oxide," by treatment at .apprx.90.degree. for 30-50 min. in a stirred reactor as a slurry contg. 25-30% solids by wt. in an aq. soln. contg. .apprx.10% HF and 10-15% H <sub>2</sub> SiF <sub>6</sub> by wt. The reacted batch is settled in a thickener, and the soln. is partly recycled to the reactor, and partly treated in a concg. still; the MnO <sub>2</sub> of the ore, which is insol. in this acid soln., is					

washed in a series of .apprx.6 countercurrent thickeners, and finally filtered and dried. In the still the wash H<sub>2</sub>O and acid salt soln. from the thickner are boiled with concd. H<sub>2</sub>SO<sub>4</sub> at .apprx.165.degree., the vapor passing through 2 condensers in series, for collecting F-bearing acids which are passed partly back to the reactor and partly to a sep. neutralizing vessel where H<sub>2</sub>SiF<sub>6</sub> is made from them with SiO<sub>2</sub> addns. Excess steam is allowed to escape at the top of the upper condenser above the still, and care is taken to maintain a correct "water balance" in the system by correlating the amt. of wash water used with its removal from the still. In the bottom of the still sulfates of Mn, Fe, and Al are formed by reaction of 70% H<sub>2</sub>SO<sub>4</sub> with the fluoride and silicofluoride salts derived from the impure ore in the reactor, and if desired the sulfates can be sepd. as crystals or sludge from this acid for recovery of these metals. In the use of this process for treating a Brazilian ore contg. Mn 51 with MnO<sub>2</sub> 72, Al<sub>2</sub>O<sub>3</sub> 5.3, Fe 3.9, and SiO<sub>2</sub> 1.37, with recycling of the HF-H<sub>2</sub>SiF<sub>6</sub> acid reagent as described, a product contg. Mn 58 with MnO<sub>2</sub> 87, Al<sub>2</sub>O<sub>3</sub> 1.32, Fe 0.73, and SiO<sub>2</sub> 0.07% was obtained. About 2 lb. wash water/lb. ore was used, 10-20% of it being lost from the cycle system as a 30% H<sub>2</sub>SiF<sub>6</sub> soln. by-product, and somewhat less in the sulfate sludge; therefore .apprx.1.5 lb. H<sub>2</sub>O/lb. ore had to be volatilized from the still.

ST IRON REMOVAL MN ORES; LEACHING MN ORES; MANGANESE ORES LEACHING; ALUMINA REMOVAL MN ORES; SILICA REMOVAL MN ORES

IT Manganese ores

RL: RCT (Reactant); RACT (Reactant or reagent)  
(leaching of, with hydrofluoric acid and fluorosilicic acid, for removal of aluminum oxide, iron and silica)

IT 1344-28-1, uses and miscellaneous 7439-89-6, uses and miscellaneous 7631-86-9, uses and miscellaneous

RL: REM (Removal or disposal); PROC (Process)  
(removal of, from manganese oxide (MnO<sub>2</sub>)-contg. ores by leaching)

L60 ANSWER 64 OF 65 HCAPLUS COPYRIGHT 2003 ACS

AN 1964:81381 HCAPLUS

DN 60:81381

OREF 60:14220f-h,14221a

TI Cleaning and polishing aluminum and its alloys

IN Kendall, Earl W.

PA Rohr Corp.

SO 9 pp.

DT Patent

LA Unavailable

NCL 156021000

CC 20 (Nonferrous Metals and Alloys)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 3106499 19631008 US 19590511

AB A mirror-like finish is obtained on Al contg. not more than 5-6% of alloyed elements, by treatment in dil. aq. solns. of, essentially, NH<sub>4</sub>F.HF, HNO<sub>3</sub>, and H<sub>3</sub>BO<sub>3</sub> at 160-190.degree.F. for 5-10 min. There is negligible attack, and the treated surface is clean and free of all metallic oxides. It is receptive to chem. conversion coatings, anodic films, and to spot and fusion welds without welding flux. The solns. can also be used to remove conversion coatings. A ratio of about 10:1 is maintained between the HNO<sub>3</sub> and the NH<sub>4</sub>F.HF. Boric acid can vary from 2 to 50 parts to 1 part of NH<sub>4</sub>F.HF, by wt. Thus, a liquid concentrate or a dry mix can be prep'd. from HF, HBF<sub>4</sub>, and H<sub>2</sub>SiF<sub>6</sub>

or their water-sol. salts and H<sub>3</sub>BO<sub>3</sub> or its water-sol. salts and be combined with HNO<sub>3</sub> and water. It should contain 0.2-0.5% NH<sub>4</sub>F.HF, 1.0-10.0% H<sub>3</sub>BO<sub>3</sub>, and 12.0-25.0% of 16-20% HNO<sub>3</sub>. A concd. soln., including the HNO<sub>3</sub> and 10% of the water, can be prep'd. For example, NH<sub>4</sub>F.HF 0.2 g., H<sub>3</sub>BO<sub>3</sub> 1.0 g., HNO<sub>3</sub> 2 ml., and H<sub>2</sub>O 10 ml. is dild. to 100 ml. of soln. for use. A preferred dry mix comprises 1 part by wt. of alkali metal fluoride, calcd. as NH<sub>4</sub>F.HF, and 5 parts by wt. of H<sub>3</sub>BO<sub>3</sub>. This is preferably dissolved in the required amt. of water, and the HNO<sub>3</sub> is added last. A 2-constituent acid compn. is prep'd. by adding HNO<sub>3</sub> and HBF<sub>4</sub> or its water-sol. salts to water. Thus, 2024 T3, 7075 T6, 3003-O, 6061 T6, 2024 T6, 2024 T81, and 5052-O Al specimens were cleaned in cold alk. soln. and treated by immersion in solns. of the invention for 10 min. at 170.degree.F. There was negligible redn. in gage in each case. Gloss varied with the alloy. Likewise, welded joints of 6061 alloy, treated by immersion in the optimum soln., then welded by the Heliarc process, left no evidence of porosity. Parts treated as above, then coated with Alodine 1000, could be stored up to 30 days without increasing surface resistance over 25 .mu.ohms and then could be spot welded without **removal** of the Alodine **coating**.

- IT Welds
  - (aluminum-Mg alloy, cleaning and polishing baths for)
- IT Polishing
  - (of aluminum, baths for)
- IT Boric acid
  - (cleaning and polishing baths contg., for Al and Al alloys)
- IT Aluminum alloys, chromium-Zr-
  - Copper alloys, Al-Mg-Zn-
  - Copper alloys, aluminum-Mg-
  - Magnesium alloys, Al-Cu-
  - Magnesium alloys, Al-Cu-Zn
  - Magnesium alloys, aluminum-
    - (cleaning and polishing of, bath for)
- IT Manganese alloy, aluminum-
  - Zinc alloys, aluminum-Cu-Mg-
    - (cleaning and polishing of, baths for)
- IT 1341-49-7, Ammonium fluoride, NH<sub>4</sub>HF<sub>2</sub>
  - 7697-37-2, Nitric acid
    - (cleaning and polishing baths contg., for Al and Al alloys)
- IT 7429-90-5, Aluminum
  - (cleaning and polishing of, bath for)

L60 ANSWER 65 OF 65 HCPLUS COPYRIGHT 2003 ACS

AN 1962:72328 HCPLUS

DN 56:72328

OREF 56:13910i,13911a-b

TI Chemical surface treatment of titanium

AU Pray, H. A.; Miller, P. D.; Jefferys, Richard A.

CS Battelle Mem. Inst., Columbus, OH

SO U.S. Dept. Com., Office Tech. Serv., PB Rept. (1961), 147,158, 30 pp.

DT Journal

LA Unavailable

CC 21 (**Nonferrous Metals and Alloys**)

AB A 5% NaOH anodic bath, a fluoride-phosphate and a fluoride-borate immersion bath, resp., are used to produce adherent, continuous coatings on Ti and its alloys. Specimens are pretreated first in a hot Na metasilicate degrease, rinsed in water, and immersed in a typical acid pickle soln. of 900 ml. 1:1 HNO<sub>3</sub> and H<sub>2</sub>O<sub>2</sub>/1., 100 g. NH<sub>4</sub>F-HF/l., and 100 ml. H<sub>2</sub>SiF<sub>6</sub>/l. to **remove** scale or **oxide** film. For Ti alloys the c.d. and time are increased as compared

to unalloyed Ti. The coatings greatly minimized the severe galling tendencies of Ti.

IT Fluorides  
 (coating with borates, phosphates and, on Ti and Ti alloys)

IT Borates  
 (coating with fluorides and, on Ti and Ti alloys)

IT Coating(s)  
 (of titanium and Ti alloys, in anodic NaOH bath, borate-fluoride and fluoride-phosphate solns.)

IT Metals  
 (uniting of, by diffusion)

IT Titanium alloys  
 (coating of, in borate-fluoride, fluoride-phosphate and NaOH anodic solns.)

IT 7440-32-6, Titanium  
 (coating (anodic, oxide, etc.) of, in NaOH, borate-fluoride and fluoride-phosphate solns.)

IT 1310-73-2, Sodium hydroxide  
 (coating of, anodic, in Ti and Ti alloys)

=&gt; D QUE

L3 14 SEA FILE=REGISTRY ABB=ON (10034-85-2/BI OR 10035-10-6/BI OR 12021-95-3/BI OR 13598-36-2/BI OR 16950-43-9/BI OR 16961-83-4/B I OR 17439-11-1/BI OR 6303-21-5/BI OR 64-19-7/BI OR 7601-90-3/B I OR 7647-01-0/BI OR 7664-38-2/BI OR 7664-93-9/BI OR 7697-37-2/BI)

L4 3 SEA FILE=REGISTRY ABB=ON L3 AND (1/TI OR 1/SI OR 1/GE)

L6 197 SEA FILE=REGISTRY ABB=ON (H(L)(SI OR GE OR TI OR GA)(L)F)/ELS(L)3/ELC.SUB

L8 1 SEA FILE=REGISTRY ABB=ON "HYDROGEN FLUORIDE"/CN

L9 1 SEA FILE=REGISTRY ABB=ON "SILICON DIOXIDE"/CN

L10 2 SEA FILE=REGISTRY ABB=ON "GERMANIUM OXIDE"/CN

L11 2 SEA FILE=REGISTRY ABB=ON "TITANIUM OXIDE"/CN

L12 2 SEA FILE=REGISTRY ABB=ON "GALLIUM OXIDE"/CN

L14 197 SEA FILE=REGISTRY ABB=ON L6 OR L4

L15 3095 SEA FILE=HCAPLUS ABB=ON L14

L17 254 SEA FILE=HCAPLUS ABB=ON L15 AND ?OXIDE? AND (REMOV? OR DISSOL? OR CLEAN? OR ETHCH? OR STRIP? OR ELIMIN? OR PICKL?)

L18 138366 SEA FILE=HCAPLUS ABB=ON OXIDES/IT

L19 3150 SEA FILE=HCAPLUS ABB=ON L18(L)REM/RL

L20 2 SEA FILE=HCAPLUS ABB=ON L17 AND L19

L22 76 SEA FILE=HCAPLUS ABB=ON L15 AND ?OXIDE?(5A) (REMOV? OR DISSOL? OR CLEAN? OR ETHCH? OR STRIP? OR ELIMIN? OR PICKL?)

L23 31 SEA FILE=HCAPLUS ABB=ON L22 AND (SUBSTRATE? OR METAL? OR TURBINE? OR AIRFOIL?)

L24 2 SEA FILE=HCAPLUS ABB=ON L15 AND L19

L25 4829 SEA FILE=HCAPLUS ABB=ON L15 OR H2SIF6 OR H2GEF6 OR H2TIF6 OR H2GAF6 OR FLUORO?(2A)ACID#(2A)(SILICON OR TITANIUM OR GERMANIUM OR GALLIUM OR TI OR SI OR GE OR GA)

L26 117 SEA FILE=HCAPLUS ABB=ON L25 AND (OXIDE? OR COATING# OR FILM# OR LAYER#) (3A) (REMOV? OR DISSOL? OR CLEAN? OR ETHCH? OR STRIP? OR PICKL?)

L27 3 SEA FILE=HCAPLUS ABB=ON L19 AND L26

L28 26 SEA FILE=HCAPLUS ABB=ON L26 AND NONFERROUS METALS/SC, SX

L29 13 SEA FILE=HCAPLUS ABB=ON L26 AND REM/RL

L30 2 SEA FILE=HCAPLUS ABB=ON L23 AND REM/RL

L31 62 SEA FILE=HCAPLUS ABB=ON L20 OR L23 OR L24 OR (L27 OR L28 OR

L29 OR L30)

L32	13 SEA FILE=HCAPLUS ABB=ON	L31 AND REM/RL
L34	33 SEA FILE=HCAPLUS ABB=ON	L31 AND METAL?/SC, SX
L36	25 SEA FILE=HCAPLUS ABB=ON	L31 AND REMOV?/IT
L37	48 SEA FILE=HCAPLUS ABB=ON	L32 OR L34 OR L36
L39	33025 SEA FILE=HCAPLUS ABB=ON	L8
L40	360136 SEA FILE=HCAPLUS ABB=ON	(L9 OR L10 OR L11 OR L12)
L42	6533 SEA FILE=HCAPLUS ABB=ON	L39(L) RCT/RL
L43	14472 SEA FILE=HCAPLUS ABB=ON	L40(L) RCT/RL
L44	309 SEA FILE=HCAPLUS ABB=ON	L42 AND L43
L45	122 SEA FILE=HCAPLUS ABB=ON	L44 AND (?OXIDE? OR COATING# OR FILM# OR LAYER#) (3A) (REMOV? OR DISSOL? OR CLEAN? OR ETCH? OR STRIP? OR ELIMIN? OR PICKL?)
L46	41 SEA FILE=HCAPLUS ABB=ON	L45 AND {SUBSTRATE? OR METAL? OR TURBINE# OR AIRFOIL?)
L47	0 SEA FILE=HCAPLUS ABB=ON	L46 AND PRECURSOR?
L48	0 SEA FILE=HCAPLUS ABB=ON	L45 AND PRECURSOR?
L49	1 SEA FILE=HCAPLUS ABB=ON	L26 AND PRECURSOR?
L51	5 SEA FILE=HCAPLUS ABB=ON	L46 AND (REM/RL OR REMOV?/IT)
L52	3 SEA FILE=HCAPLUS ABB=ON	L45 AND METAL?/SC, SX
L53	3725 SEA FILE=HCAPLUS ABB=ON	L39 AND L40
L54	122 SEA FILE=HCAPLUS ABB=ON	L53 AND PRECURSOR?
L55	49 SEA FILE=HCAPLUS ABB=ON	L54 AND (?OXIDE? OR COATING# OR FILM# OR LAYER#) (3A) (REMOV? OR DISSOL? OR CLEAN? OR ETCH? OR STRIP? OR ELIMIN? OR PICKL?)
L56	1 SEA FILE=HCAPLUS ABB=ON	L19 AND L55
L58	352 SEA FILE=HCAPLUS ABB=ON	L19(L) INORGANIC
L59	10 SEA FILE=HCAPLUS ABB=ON	L53 AND L58
L60	65 SEA FILE=HCAPLUS ABB=ON	L37 OR (L47 OR L48 OR L49) OR L51 OR L52 OR L56 OR L59
L61	10 SEA FILE=REGISTRY ABB=ON	PHOSPHORIC ACID/CN OR NITRIC ACID/CN OR SULFURIC ACID/CN OR HYDROCHLORIC ACID/CN OR HYDROBROMIC ACID/CN OR ACETIC ACID/CN OR PERCHLORIC ACID/CN OR PHOSPHOROUS ACID/CN OR PHOSPHINIC ACID/CN
L62	11 SEA FILE=REGISTRY ABB=ON	L61 OR L8
L63	308929 SEA FILE=HCAPLUS ABB=ON	L62
L64	52 SEA FILE=HCAPLUS ABB=ON	L26 AND L63
L65	2 SEA FILE=HCAPLUS ABB=ON	L64 AND COMPOSITION?
L66	1176307 SEA FILE=HCAPLUS ABB=ON	L63 OR ALKYL SULFONIC ACID# OR H <sub>2</sub> PO <sub>4</sub> OR HNO <sub>3</sub> OR H <sub>2</sub> SO <sub>4</sub> OR HCl OR HF OR HBr OR HClO <sub>4</sub> OR H <sub>2</sub> PO <sub>3</sub>
L67	74 SEA FILE=HCAPLUS ABB=ON	L26 AND L66
L68	4 SEA FILE=HCAPLUS ABB=ON	L67 AND COMPOSITION?
L69	2 SEA FILE=HCAPLUS ABB=ON	L26 AND ADDITIONAL(1A)ACID#
L70	6 SEA FILE=HCAPLUS ABB=ON	L65 OR L68 OR L69
L71	67 SEA FILE=HCAPLUS ABB=ON	L60 OR L70
L72	2 SEA FILE=HCAPLUS ABB=ON	L71 NOT L60

=> D L72 ALL HITSTR 1-2

L72 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1965:420296 HCAPLUS  
 DN 63:20296  
 OREF 63:3609d-g  
 TI Scheme of analysis of substances of complex composition with  
 determination of aluminum, beryllium, barium, strontium, calcium,  
 magnesium, lead, and fluorine  
 AU Tserkovnitskaya, I. A.; Borovaya, N. S.; Bakhvalova, M. N.

additonic  
acid

Only 2 more references

SO Metody Kolichestv. Opred. Elementov. Leningr. Gos. Univ. (1964) 84-7  
 DT Journal  
 LA Russian  
 CC 2 (Analytical Chemistry)  
 AB The indirect method of detg. Ca and Sr consists in pptg. them, after sepn. of the Ba, as the oxalates, calcining to const. wt., **dissolving** the resulting **oxides** in dil. **HCl**, and detg. the Sr + Ca by complexometric titrn. The Pb, Al, Be, Ba, Sr, and Ca are detd. successively in aliquots of the soln. obtained after treatment of a known wt. of the sample with concd. **HNO<sub>3</sub>** to remove F-. The Pb is first sepd. electrolytically on a Pt gauze anode. The PbO<sub>2</sub> is dissolved in dil. **HNO<sub>3</sub>** in the presence of H<sub>2</sub>O<sub>2</sub> and detd. by complexometric titrn. with the indicator Eriochrome Black T. From the soln. remaining from the electrolysis, Al(OH)<sub>3</sub> + Be(OH)<sub>2</sub> is pptd. with a CO<sub>2</sub>-free 5% NH<sub>3</sub> soln. After repptn., the hydroxides are dissolved, the Al and Be are sepd. by the quinolinolate method, and the ppt. is weighed as Al(C<sub>9</sub>H<sub>6</sub>ON)<sub>3</sub>. After destruction of the excess quinolinolate with **HNO<sub>3</sub>** the Be is pptd. as Be(OH)<sub>2</sub> with 5% CO<sub>2</sub>-free NH<sub>3</sub> soln. From the combined filtrates after sepn. of the Al(OH)<sub>3</sub> and Be(OH)<sub>2</sub>, ppt. BaCrO<sub>4</sub>, dissolve it in 0.1M **HClO<sub>4</sub>**, and det. the Ba amperometrically. The H<sub>2</sub>CrO<sub>4</sub> is titrated with Mohr's salt soln. at 1 v. (S.C.E.) by using a Pt microelectrode. After sepn. of the Ba from the combined solns., ppt. the oxalates of Sr and Ca, in the presence of Trilon B, with a satd. soln. of (NH<sub>4</sub>)<sub>2</sub>C<sub>2</sub>O<sub>4</sub>. After calcination, weigh the residue of CaO + SrO, dissolve it in 1:1 **HCl**, and titrate with 0.05N Trilon B soln. in the presence of Acid Chrome Dark Blue indicator. To another aliquot of the soln., add 5% NH<sub>3</sub> soln., filter off the ppt. of hydroxides, ppt. the BaSO<sub>4</sub> + SrSO<sub>4</sub> + CaSO<sub>4</sub> with 1:1 **H<sub>2</sub>SO<sub>4</sub>** soln. in the presence of a 2-fold vol. of alc., and det. the Mg complexometrically by titrn. in presence of Acid Chrome Dark Blue. The F is detd. on a sep. sample by distg. it off as **H<sub>2</sub>Sif<sub>6</sub>**, pptg. the F- in ammoniacal soln. with excess CaCl<sub>2</sub>, and back titrating the latter with Complexon III in the presence of Acid Chrome Dark Blue.  
 IT 7429-90-5, Aluminum 7439-89-6, Iron 7439-92-1, Lead 7439-96-5,  
 Manganese 7440-02-0, Nickel 7440-31-5, Tin 7440-32-6, Titanium  
 7440-36-0, Antimony 7440-42-8, Boron 7440-47-3, Chromium 7440-50-8,  
 Copper  
     (analysis, detn. in SiC)  
 IT 7439-95-4, Magnesium  
     (analysis, in polyesters, in SiC)  
 IT 7429-90-5, Aluminum 7439-92-1, Lead 7439-95-4, Magnesium 7440-24-6,  
 Strontium 7440-41-7, Beryllium 7440-70-2, Calcium 7782-41-4,  
 Fluorine  
     (analysis, sepn. and detn.)  
 IT 7440-39-3, Barium  
     (sepn. and detn.)  
 L72 ANSWER 2 OF 2 HCPLUS COPYRIGHT 2003 ACS  
 AN 1955:4298 HCPLUS  
 DN 49:4298  
 OREF 49:818f-i  
 TI Surface treatment and finishing of light metals. V. Chemical conversion coatings  
 AU Wernick, S.; Pinner, R.  
 SO Metal Finishing (1954), 52(No. 10;No. 11), 68-73;83-7  
 DT Journal  
 LA Unavailable  
 CC 9 (Metallurgy and Metallography)

AB While the oxide conversion coat can be used without further treatment, in the main its function is to act as an undercoating and a base for org. finishes. It is normally considerably thinner than the oxide film produced by anodizing and for most protective applications the conversion coatings are, therefore, hardly competitive with anodic finishes. The main attraction of finishes obtained by chem. conversion is the economy and speed with which they can be produced. When Al is immersed in boiling H<sub>2</sub>O, the natural oxide film is increased in thickness, though only to a limited degree. The oxidation of Al in the presence of H<sub>2</sub>O will, however, stop after a certain thickness is reached, as the coating is nonporous and will not allow the passage of the soln. to the metal surface. To obtain thicker coatings it is necessary, therefore, to include in the soln. compds. which will have a slight **dissolving** action on the **coating** and facilitate entry of the soln. Commercially available solns. consist of inhibited alk. solns. or weak acids such as **HF**, **H<sub>2</sub>SiF<sub>6</sub>**, **H<sub>2</sub>CrO<sub>4</sub>**, or **H<sub>2</sub>C<sub>4</sub>H<sub>4</sub>O<sub>6</sub>**. The treatment is most effective when applied to Al and its alloys with Mg, Mn, and Si. On duralumin-type and other high-Cu alloys, the coatings tend to be powdery. Effects of **comprn.** on color and nature of the coating are discussed in detail. The relation between operating conditions and film growth is discussed. Methods of dyeing the coatings are described. 26 references.

- IT Coating(s)
  - (for aluminum and Al alloys, chem. conversion)
- IT Dyeing
  - (of aluminum and Al alloys (anodized, etc.))
- IT Color(s)
  - (of coatings (chem. conversion) on Al and Al alloys)
- IT Copper alloy, aluminum-
  - (chem.-conversion coatings for)
- IT Duralumin, Dural
  - (coatings (chem. conversion) for)
- IT Aluminum alloys
  - (coatings for, chem. conversion)
- IT 7429-90-5, Aluminum
  - (coatings for, chem.-conversion)

=> S L70 NOT L72  
 L73                  4 L70 NOT L72

=> D BIB 1-4

L73 ANSWER 1 OF 4 HCPLUS COPYRIGHT 2003 ACS  
 AN 2002:575443 HCPLUS  
 DN 137:128349  
 TI Acidic etching for **removal** of **oxide** films  
     and coatings from a metal substrate  
 IN Kool, Lawrence Bernard; Ruud, James Anthony  
 PA General Electric Company, USA  
 SO U.S. Pat. Appl. Publ., 11 pp.  
     CODEN: USXXCO  
 DT Patent  
 LA English  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002100493	A1	20020801	US 2001-771186	20010129
PRAI US 2001-771186		20010129		

*These 4 references with additional acids were printed in full with the first set of 65 answers.*

L73 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:293775 HCAPLUS  
 DN 136:326996  
 TI Method for pretreating and subsequently coating metallic surfaces with a paint-type coating prior to forming and use of substrates coated in this way  
 IN Shimakura, Toshiaki; Bittner, Klaus; Domes, Heribert; Wietzoreck, Hardy; Jung, Christian  
 PA Chemteall GmbH, Germany  
 SO PCT Int. Appl., 115 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002031065	A2	20020418	WO 2001-EP11738	20011010
	WO 2002031065	A3	20020627		
		W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
		RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG		
	AU 2002015940	A5	20020422	AU 2002-15940	20011010
PRAI	DE 2000-10050532	A	20001011		
	DE 2001-10110830	A	20010306		
	DE 2001-10119606	A	20010421		
	WO 2001-EP11738	W	20011010		

L73 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:763349 HCAPLUS  
 DN 135:309344  
 TI System for the preferential removal of silicon oxide  
 IN Mueller, Brian L.; Chamberlain, Jeffrey P.; Schroeder, David J.  
 PA Cabot Microelectronics Corporation, USA  
 SO PCT Int. Appl., 20 pp.  
 CODEN: PIXXD2

DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001078116	A2	20011018	WO 2001-US11604	20010409
	WO 2001078116	A3	20020221		
		W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
		RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG		

EP 1272580 A2 20030108 EP 2001-926798 20010409  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
PRAI US 2000-547425 A 20000411  
WO 2001-US11604 W 20010409

L73 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS  
AN 1964:81381 HCAPLUS  
DN 60:81381  
OREF 60:14220f-h,14221a  
TI Cleaning and polishing aluminum and its alloys  
IN Kendall, Earl W.  
PA Rohr Corp.  
SO 9 pp.  
DT Patent  
LA Unavailable

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 3106499		19631008	US	19590511